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SANITATION ON THE CANAL ZONE*

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I am bound to the Baltimore of a former generation by the closest ties of gratitude and friendship. I first came to Baltimore about forty-five years ago—a ragged, barefooted little rebel, with empty pockets and still more empty stomach. My father had gone south with Lee's army. At the fall and destruction of Richmond, my mother's house with all she had was burned, leaving her stranded with six small children. She came to Baltimore and was there assisted and cared for by kind friends. These memories are vivid with me still and can never be effaced.

It is with great pleasure that I take this opportunity of wishing good fortune on their way through life to the men who have taken degrees at Johns Hopkins this year. I still have a vivid recollection of my mental state when I had arrived at a similar period in my own career, about thirty-five years ago. It is a glorious period. All life is before you and any success is possible. I congratulate you with all my heart and wish each and all of you the success in life each most craves.

I shall not attempt to give you advice as to your future. I do not recollect that the advice of the gentleman who addressed us on a similar occasion had very much effect. But I do recollect that we were all very anxious for him to finish. I shall bear this in mind in speaking to you this afternoon. I think that I can make myself more useful and interesting on this occasion by telling something of our work on the Isthmus and by pointing out the ways in which our work, particularly the sanitary work, will be useful in the future.

In the ordinary acceptation of the words, we are not building a canal at Panama. We are building two lakes: one on the northern side of the mountain chain, which is the backbone of the Isthmus, and the other on the south side. The engineers in selecting the location for the canal sought the lowest point in the mountain chain extending from Patagonia to Alaska. This was found to be at Culebra on the Isthmus of Panama. The Isthmus of Panama here runs east and west with a mountain chain running in the same direction. They then took the river rising nearest Culebra on the north, the Chagres, and dammed it. This makes the large northern lake, Gatun. They then found the river which rose nearest Culebra on the south, the Rio Grande, and dammed this, making the southern lake, Miraflores. They then connected the two lakes by means of a canal about 9 miles long, cutting the mountain ridge at Culebra. They then connected the northern lake with the Caribbean Sea by a sea-level canal about 8 miles long, and the southern lake with the Pacific ocean by means of a similar canal.

We now have, commencing on the north at the Caribbean sea, a sea-level canal 8 miles long, connecting the Caribbean sea with the northern lake, Lake Gatun; then south, 23 miles through this lake; then another canal 9 miles long through the mountain ridge connecting the northern lake with the southern lake; then about 2 miles through this southern lake, Lake Miraflores; then another 8 miles of sea-level canal connecting the southern lake with the Pacific Ocean. The level of the lakes is 85 feet above the level of the canals connecting the lakes with the ocean. Locks therefore have to be placed in the dams so as to raise and lower the ships between these levels. This work is now drawing to its close. The chief engineer states that he will be passing ships through from ocean to ocean by July, 1913.

The sanitary phase of this work has always been considered very important. From the first discovery of America, this point had been the place of crossing between the two oceans in the western hemisphere, and therefore there has always been at Panama a large number of unacclimatized Europeans. These unacclimatized Europeans were food for tropical infectious diseases, particularly yellow fever. On the average, for the past four hundred years, there have been more unacclimatized Europeans present in Panama than in any other tropical city in the world liable to yellow fever. Therefore Panama has acquired the reputation of being the most unhealthy spot known. When the United States commenced the building of the canal in 1904, the fact of the very insalubrious condition at Panama had just been sharply accentuated by the recent experience of our immediate predecessors, the French. The French company which had commenced the Panama Canal had kept a large force on the Isthmus for eight years. Their losses from tropical diseases, particularly yellow fever, had been such as to startle all the world. Between the time of the failure of the French company in 1889 and the undertaking of the work by the Americans, two great discoveries had been made in the field of tropical medicine which have practically revolutionized sanitation in the tropics. I refer to the discovery by Ronald Ross and others of the fact that malaria was conveyed from man to man by the bite of the female of a particular species of mosquito. Ronald Ross was an English army surgeon and announced his discovery in 1898. The other was the proof by Walter Reed and his confrères of the theory that yellow fever was conveyed from man to man by the bite of the female of another species of mosquito. Walter Reed was a surgeon in the United States Army and announced the achievement of his board in the year 1901. The discovery that yellow fever was

* Address delivered at the commencement exercises of Johns Hopkins University, June 11, 1912.

conveyed by a mosquito was an even more important discovery to tropical America than the discovery of the fact that malaria was conveyed in this way. At the time that Reed announced the discovery of the board of which he was chairman, the United States had control of the sanitation of Havana. Practical methods were here worked out whereby Reed's and Ross' discoveries could be made of practical utility. Unexpected success was accomplished as to both yellow fever and malaria. Within a year yellow fever had disappeared from Havana. For a hundred and fifty years before that time this city had never been free from yellow fever. Malaria disappeared more slowly. But now, after ten years of mosquito work, the deaths from malaria in the city of Havana have dropped from an average of 350 per year to an average of about ten. The success in Havana having been so marked, the United States determined to apply the same principles at Panama. Work was commenced in May, 1904; in May, 1906, the last case of yellow fever occurred on the Isthmus.

The French, with an average force of 10,000 employees, lost from death during their construction period 22,000 men. We, with an average force of 33,000 men during about the same length of time, have lost from death 4,000.

The French, with an average of 1,600 white employees, lost during their construction period from yellow fever 2,000 men. We, with an average of 5,000 white employees during the same length of time, have lost from yellow fever only eighteen. Our maximum of sickness from malaria was in 1906, when we had in hospital from that disease 821 men out of every thousand of our employees. This number has been steadily reduced till the year 1911, when we had only 184 out of every thousand sick in hospital from malaria.

The general health conditions of the whole community are about those of a healthy community in the United States. The death-rate of the Zone, including the cities of Panama and Colon, for the years 1911, was 21 per thousand.

But what I wish to emphasize particularly is the health condition of the American employees of the commission. During the year 1911 we had 10,489 American whites connected with the commission. Their death-rate from disease was 4.48 per thousand. Of these 10,489 Americans, 6,025 were men and 4,464 women and children. The death-rate from disease among the men was 2.82 per thousand. That among the women and children from the same cause was 6.72 per thousand. I think a still better way of satisfying oneself with regard to health conditions is direct observation of the American employees. They as a class are rugged and healthy-looking, of good color, and energetic and active in movement. They look more like the farmer and his family of the northwest than like people who have lived in the tropics for four or five years.

It is an established fact that always in the past the Caucasian has wilted and died in the tropics. He has found it almost impossible to rear his children under these conditions, and when he has survived, a degenerate race has resulted. But here at Panama a force of 10,000 Caucasians has lived for the past six years in as good health as similar people live in the healthful parts of the United States. Bear in mind, at the same time, that not only is Panama located in the most tropical portion of the tropics, but by universal consent it has been known as the most unhealthful location in all the tropics. It has borne this reputation for the past four hundred years. For four hundred years the Caucasian has tried to live here and use Panama as a crossing-place; but he has found it impossible to do so. The toll in life has been very heavy when he spent in the jungle of the isthmus even the few days that were necessary for the crossing; and when he attempted to stay longer, as with the French under De Lesseps, the loss was appalling. What has made the difference between invalidism and death in the one period, and robust and vigorous health in the other period? The conditions otherwise remain the same. I am satisfied that this unexpected condition of the American population is due solely to the fact that the American authorities have protected them from the infections of yellow fever and malaria. It seems to me that the effects of this experiment carried out on so large a scale will be far-reaching. The tropics, at present, contain much the largest and most productive portions of the earth's surface. A man's labor in the tropics will bring him in many times the returns that the same amount of labor will produce in the temperate zone. Heretofore he has been kept out of these regions by his sad experiences with regard to the health conditions. Panama is conspicuous as having been known as the most unhealthful place in the world, and also as having had carried into execution within its borders the greatest construction feat man has ever undertaken. It will at once be evident that if the white man can live, work and rear a family under these conditions at Panama, the same can be done in any other part of the tropics. And the tendency will be for man to emigrate, other things being equal, to those parts of the world where he can get the largest return for his labor. The great centers of civilization will develop in these regions, other conditions being the same, where man's labor applied to natural opportunities produces the greatest return, for the reason that under these conditions a greater proportion of the population can turn its attention to the arts, sciences, music, letters and other walks of life that have a softening and civilizing tendency.

I believe, then, that our sanitary work at Panama will be remembered as the event which demonstrated to the white man that he could live in perfectly good health in the tropics; that from this period will be dated the beginning of the great white civilizations in these regions; and that again great tropical empires will be known, such as existed in the early history of man—such as Egypt, Babylon and Nineveh. I hope that the sanitary work at Panama will be remembered as having taught the white man that these things are possible.

Reports have gone out from the Isthmus, both from those in authority and from newspaper writers, to the effect that sanitation has been very expensive; that when the work shall have been finished, sanitation will have cost 5 per cent. of the total expense. This comes about from getting the expenses of the sanitary department confounded with those of sanitation. The sanitary department spends a good deal of money that has no relation whatever to sanitation; for instance, more than half the revenues of the sanitary department are spent on hospitals, dispensaries, etc., things which have no relation whatever to sanitation. It is just as misleading to call such things on the Isthmus "sanitation" as it would be here in Baltimore to charge to the health department the expenses of all hospitals and dispensaries and the incomes of the physicians and nurses. If this were done, the expenses of the Health Department of Baltimore would amount to a very large percentage of the total expense of the city government. As a matter of fact, the sanitation on the Isthmus has cost us about $400,000

per annum. This is a little more than 1 cent per day per capita for the total population; and when we are through, we shall have spent on sanitation about $4,000,000 instead of $20,000,000, as has been stated, 1 per cent. of the total cost of the canal instead of 5 per cent.

I am anxious to have this misunderstanding corrected because the matter has a far wider application than to our local affairs on the Isthmus. If we hope that our work is going to be of assistance to other tropical countries, we must show that the expenses of sanitation are within the limits of their financial ability. If the South American governments are told that it has cost the American government $20,000,000 for the sanitation of this small territory of 500 square miles on the Isthmus for ten years, they will all see at once that a similar work for themselves would be entirely beyond their financial ability. But if they are informed that it has cost the Americans a little more than a cent a day per capita for the work, they will know that they are financially able to do the same. This can certainly be done by all these countries, as far as their larger and infected cities are concerned. As it is a matter that may be of great use to our tropical neighbors, both north and south of Panama, I make no apologies for bringing it up on this occasion.

GUNSHOT WOUNDS OF THE ABDOMEN *

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The greater relative frequency of gunshot wounds of the abdomen in civil practice than in military practice is explicable by the closer range, and by the more accurate aim of the assailant in civil life. Younge[1] reports 1,053 rifle-ball wounds occurring in the Boer War, of which 92 (9 per cent.) were of the head, 85 (8 per cent.) of the chest and 66 (6 per cent.) of the abdomen. My own experience, limited to civil practice, consists of 41 cases, of which 13 (31 per cent.) were of the head, 8 (19 per cent.) of the chest and 13 (31 per cent.) of the abdomen.

The wound of entry is usually to be found in the anterior or lateral aspect of the abdomen, though the bullet may enter from the back, and not infrequently bullet wounds of the chest also penetrate the abdomen. Two patients in this series were shot in the back, one dying of hemorrhage before reaching the hospital, the result of damage done by a 0.44-caliber bullet. In three patients shot in the chest, the abdomen was also involved. Blundering cases of abdominal involvement when the wound of entry shows in the thorax may be avoided by ascertaining the approximate angle at which the bullet entered, the posture of the victim at the time the shot was fired and by bearing in mind the anatomy of the region probably traversed.

A boy, aged 11, while on the ground, was homicidally shot by a companion with a 0.22-caliber rifle, from the top of a 15-foot barn at a distance of about 70 feet, thus giving a marked downward course to the projectile. The wound of entry was in the seventh left interspace in the mammary line. There was no wound of exit. This patient was seen in consultation thirty-one hours post-trauma, at which time he had a pulse of 140; axillary temperature 102.4; costal respiration 60; a greatly distended and tender abdomen; dulness in both flanks; liver dulness elevated; leaky skin; hippocratic facies, and constant vomiting. Enemas had brought some blood. Operation was, of course, not undertaken, and he died forty-eight hours post trauma. An autopsy was not permitted.

A greater number of perforations may be expected if the bullet traverses the abdomen transversely or obliquely than if its direction be anteroposterior.

The more one sees of shot cases the less dogmatic does one become in asserting that any given portion of the body is not involved, irrespective of its remoteness from the wound of entry. Distant organs not even suggested by the wound, the history of the accident or by the early symptoms sometimes lodge a bullet. Such a case I well remember because it proved so chagrining. It is worthy of report, not only as illustrative of the preceding statement, but also on account of its rarity.

A boy, aged 10, was accidentally shot with a 0.22-caliber rifle by his brother at a distance of about 100 feet. They were walking on level ground. The bullet entered the external aspect of the right thigh at its middle third. There was no wound of exit. The wound was cleansed and dressed, and the parents told to bring the boy to the office in a few days. On the third day I was summoned, as the boy complained of intense abdominal pain and inability to defecate. Imagine my surprise, when on arrival, the boy was found dying of peritonitis. Death occurred eighty-two hours post trauma.

It should have been of extreme interest to ascertain the path of the bullet, but as an autopsy was not allowed, the mode of its entry to the abdomen will remain forever unknown. Had the patient been in the hospital, the early signs of abdominal involvement would probably have been noted and the boy given at least a chance for his life, whereas he was in an adjoining town without care—a fact which merely emphasizes the importance of having all cases under trained supervision.

After entering the abdomen bullets traverse that cavity in the straight line of their projection. The posture of the victim at the time of accident and the mobility and contractility of certain viscera will explain the manner in which organs are wounded which lie outside the apparent line of transit when the patient is supine on the operating-table. Though the theory is held by some men of repute, I am unwilling to concede that the soft tissues occupying the abdominal cavity are capable of deflecting a bullet.

It is universally asserted that by reason of the comparative innocuousness of the gastric and upper intestinal contents as contrasted with the bacteria-laden contents of the lower bowel, wounds of the upper abdomen are attended with a lower mortality than are those of the lower abdomen. On account of the abundant lymph channels in the upper abdomen, thus permitting very speedy absorption, as evidenced by the rapidity with which death succeeds the unoperated gastric ulcer perforations and other infective processes of the upper abdomen, and because of the considerable chance of profuse hemorrhage from the liver, spleen, kidneys or large vascular trunks, I am convinced that this statement is without substantial foundation. The following case report is pertinent:

A man, aged 51, was homicidally shot shortly after dinner with a 0.32-caliber, soft-nosed, steel-jacketed bullet at a distance of a few feet. The wound of entry was 2 inches above and a half inch to the right of the umbilicus. The wound of exit was half an inch anterior to the left posterior axillary line and 2½ inches above the iliac crest. He was operated on four hours post trauma. A median incision disclosed the abdomen filled with blood, stomach contents and feces. There appeared a 2-inch lacerated wound of the lower border of the

* Read before the Western Surgical Association, Dec. 20, 1912.
1. Younge: Jour. Royal Army Med. Corps, August, 1904.

liver, which was bleeding but slightly, one wound of the small intestine, two stomach wounds, one anterior and one posterior admitting four fingers, three in the colon and eight in the mesentery. Extreme laceration with ragged edges characterized all wounds and was doubtless due to the explosive effect of the high-velocity bullet which has a penetrating power of 7 inches of solid pine. After repair and careful sponging, suitable drainage was provided. The pulse and temperature steadily rose till death occurred, eighteen hours after the operation. The autopsy showed all sutures holding; the hollow viscera were air-tight and there were no fluid in the abdomen and no macroscopic evidence of peritonitis. It was considered that death was due to toxemia, and that the absorption had been so rapid as not to have permitted the development of the gross lesions of peritonitis usually encountered.

Army surgeons seem to have shown statistically that a greater number of gunshot wounds of the abdomen in war are recovered from under non-operative treatment than under operative treatment. Several factors which do not obtain to so great an extent in civil life contribute to the high mortality of operative cases in war, such as: (*a*) the long time taken to transport the injured, thus making for late operations; (*b*) the various and often jolting means of transport, and (*c*) the poor conditions frequently surrounding the operation. Moreover, I feel that their statistics are delusive, for doubtless many patients die on the battle-field and during transportation whose cases do not adorn the statistics.

Penetration is not always accompanied by visceral injury, as evidenced by the reports of several cases in the literature, and by the following case of my own:

A man, aged 32, was shot with a 0.38-caliber bullet in the abdomen 2 inches to the left and 1 inch above the umbilicus. The wound of exit was 2 inches to the left of the spine on a level with the anterior wound. Operation was refused, orders wantonly disobeyed, and yet a symptomless recovery ensued.

Nevertheless, in every case of penetration of the abdomen by a bullet, multiple perforations of the viscera are to be assumed, and prompt surgical exploration is demanded.

The symptoms usually mentioned are not the symptoms of perforation, but are signs of hemorrhage or peritonitis and in the ordinary case are not to be awaited. By the ordinary case is meant one which shows a wound of entry to the abdomen. The occasions when there is apt to be difficulty in deciding the treatment will arise from an uncertain diagnosis; when the wound of entry is so placed as not to indicate clearly whether or not the abdominal cavity has been invaded. For instance, gunshot wounds of the back or thorax without a wound of exit may perforate any of the organs of the abdomen. In such a case one would necessarily rely on symptoms, the more so if the history of the case were defective so one could not reasonably be led to any deduction. Hemorrhosis, hematuria, hematemesis, tympany, gas in the abdominal cavity, shock, rapid pulse, pain, muscular rigidity, etc., are then signs of the greatest significance, particularly the pain and rigidity. Given such a case with indications of probable involvement of the abdomen, symptoms, which as previously mentioned signify either peritonitis or hemorrhage, should not be waited for, but the operation should be proceeded with at once.

The site of the incision may occasionally, if the wounds of entry and of exit are both at one side, be placed laterally; though usually, in order that the entire intestinal tract may the more easily be examined, the median incision is indicated.

Needlessly long incisions, evisceration, rough handling of the intestine and long exposure are to be condemned. Much time may be wasted, however, by attempting a thorough search through an insufficient aperture; therefore I always have an opening sufficiently large to permit rapid work, regardless of its length. Also, while disapproving unnecessary evisceration, yet in the presence of an abdomen full of blood, I do not hesitate to turn out intestines abundantly, to expedite finding the source of the hemorrhage, which I think should first be checked if profuse, and the intestinal perforations, from which contents may effuse, attended to after the bleeding has been controlled. This is at variance with the advice often promulgated, some maintaining that while searching for the bleeding point more intestinal contents may be expelled by manipulation, thus enhancing the danger of infection. I am convinced that this is an exaggerated danger, for if the bowels are treated with the gentleness which should characterize their handling, then the tonically contracted intestine remains *in statu quo*, which is Nature's own device to prevent expression of contents. Moreover, if the intestines be outside the abdominal cavity, as they sometimes are, the objection does not hold. Further, even though there were to be some discharge from the intestine openings, in the presence of a copious hemorrhage, the danger of increased peritoneal soiling is of less importance than the danger of immediate death from hemorrhage, and the method advocated is the proper one to pursue. Should there be but inconsiderable bleeding, there manifestly is no occasion to search for its origin, but repair of the intestinal wounds should be proceeded with methodically, and the bleeding will likely have ceased by the time the several wounds have been repaired. If hemorrhage is profuse one may be confident that its source is to be found elsewhere than in the hollow viscera, and the search should without delay be directed, as suggested by the line of transit, to the solid viscera, mesentery, omentum or large vessels.

Wounds of the urinary bladder and gall-bladder permit immediate extravasation, as do large wounds of the stomach, whereas most shot wounds of the intestine will show little or no extravasation during the early hours following injury by reason of the tonic contraction.

Wounds of the liver and spleen are dangerous primarily on account of hemorrhage. Hepatic bleeding is usually controllable by catgut sutures, or rarely tape sutures may be necessary. Hemorrhage from the spleen is more difficult to control. Packing or suture may be tried, but if these measures fail one need not hesitate to perform splenectomy, as the results of this operation have been very satisfactory.

Wounds of the kidney may, if the renal vessels have been severed, or if great destruction of the kidney substance has been inflicted, require nephrectomy. Lesser wounds of the kidney, and injury to the pelvis or ureter require suturing, and in all cases efficient drainage through the loin should be provided.

Wounds of the pancreas are always accompanied by injuries of other viscera; their management is difficult and consequently they present a high mortality. They should be packed and provided with abundant posterior drainage, even if anterior drainage is also supplied.

Wounds of the stomach or intestine may show only a single opening, which can happen if the bullet perforates at or near the apex of a fold, though usually there are two, one of entry and one of exit; so it is a safe rule to search for an even number of holes in the hollow viscera. Should there be difficulty in finding the posterior opening in the stomach, or should there be doubt as to its

existence, a simple means of determination is suggested by Martin.[2] A purse-string suture is introduced about the anterior wound as for closing, and a rubber tube inserted, when the purse-string is tightened about the tube. Salt solution is then introduced into the stomach through the tube, and should a posterior opening exist, the solution escaping into the lesser peritoneal cavity would readily announce the fact. As Martin says, the disadvantage of washing out the gastric contents, thus further contaminating the lesser sac, is outweighed by the manifest advantage of knowing whether or not there is a second opening. I think, however, that this expedient would be a rare requisite. The possibility of having single openings, as mentioned, is well illustrated by the following case which presented two such injuries, thus still adhering to the general rule of having an even number of perforations:

A boy, aged 13, accidentally shot with a 0.22-caliber rifle, was seen in consultation with Dr. J. A. Jeannotte, six hours after the accident. The bullet entered 1½ inches below and 1 inch to the left of the umbilicus. The wound of exit was 1¾ inches below and 1 inch posterior to the posterior superior spine of the ilium, and 1¼ inches to the right of the median line. He presented all the signs of internal hemorrhage, with a pulse of 140. He was operated on seven hours post trauma. A long median incision disclosed an abdomen full of blood and a small amount of semifluid feces. Most of the small intestine was hastily rolled out, the blood scooped out with the hands and the abdomen sponged so as to discover the source of the hemorrhage, which was found to be three perforations of the mesentery. These were sewed up, and afterward fourteen perforations of the small intestine, two of which were single, i. e., the bullet had caught the apex of a fold and made a rather long opening as compared with the others, in two different portions of the intestine. The intestine, being outside, was washed clean of feces before being returned. The abdominal cavity was sponged dry and the incision sutured, leaving an opening at the lower angle from which a drain to the pelvis protruded. The Fowler position was maintained for three days. Recovery was slow but uncomplicated.

Trimming the bruised edges of intestinal wounds, as advised by some, I deem unnecessary, as it requires time, which may be of great import. Moreover, these edges are easily infolded, and if reasonable care be exercised that the stitches penetrate healthy tissue, there need be no feeling of insecurity. A word of caution may not be amiss: as previously mentioned, in all shot cases of the intestine seen early, the intestine will be found in a state of spasticity, resembling in size the small intestine of a dog. It is important therefore to be careful in suturing the openings that not too much tissue be infolded, as the bite of the suture is apt to be much deeper in the contracted bowel than the inexperienced intends or realizes. Bearing the fact in mind and exercising ordinary caution will guard against this danger.

It would seem hardly necessary to insist on thorough exploration of all the abdominal viscera, but not a few cases are on record which have been lost by overlooking a distant perforation which resulted in a fatal peritonitis. It is well also to look for more than one bullet wound, as a second one will occasionally be found. In some pistol fights the combatants mean to kill, more than one shot is fired and not infrequently two bullets find their target.

Whether or not to drain should be determined by the general principles which govern drainage in all abdominal conditions. If there has been but little peritoneal soiling and there is no oozing, I think it is better to close up tight. If there is considerable oozing, or if there has been extensive peritoneal soiling, then drainage is indicated. If in doubt it is safer to drain.

As stated in the beginning, there were thirteen cases in this series: seven patients were operated on and six were not. With the exception of the one who refused operation and recovered—a hundred-to-one hazard—the patients not operated on either died of hemorrhage before they could be removed to the hospital, or were moribund when first seen. Ten cases involved only the abdomen, and three involved both the thorax and abdomen. These three patients died. Only one was operated on, when the diaphragmatic, stomach and mesenteric wounds were repaired. The patient died of secondary pulmonary hemorrhage twenty hours after the operation. After the exclusion of this case, which I think is proper as it involved both the thorax and abdomen, and because the thoracic injury was alone responsible for death, six cases of gunshot wound of the abdomen with intestinal perforations are left; all patients were operated on within eight hours of the accident, with one death, a mortality of 17 per cent.

2 Martin: Ann. Surg., 1907, xlv, 669.

A STUDY OF THE TOXICITY OF THE SALICYLATES BASED ON CLINICAL STATISTICS*

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This study was undertaken with the hope of clearing up some of the traditions concerning the therapeutic use of salicylates. It is believed by some clinicians that certain of the salicylates are not so toxic as others. There is also a common idea that the toxicity is different — either greater or smaller — in rheumatic fever than in other conditions. Other factors which are but vaguely understood are the relation of age, sex and race to the toxic dose of the salicylates, the influence of the dose on the occurrence of albuminuria and idiosyncrasy.

For this study the clinical records of the medical wards of Lakeside Hospital were made available through the courtesy of the medical staff and hospital officials. All of these records have been systematically kept practically since the establishment of the hospital. The fact that they were kept with no definite aim for such an investigation as this helps to insure the complete impartiality of the data.

The records of about four hundred patients were secured, all of whom were aged 16 years or over. The desired information about each patient was briefly abstracted on small cards which were then used in the compilation of the data by the statistical method.

The "median" or "mean" toxicity was calculated by the method of Laplace. As explained by Scripture,[1] this method gives more useful results in biologic statistics than does the ordinary arithmetical average. In determining the median dose, all the doses in a given group are arranged in ascending order, for instance, 45, 60, 60, 140 grains (quantities of Diplosal received by four individuals between 30 and 45 years of age as shown in Table 4). There being four cases, the middle or median dose would be between the second and third of the series, namely 60 and 60. Had there been five doses, the middle

* From the Pharmacologic Laboratory, Medical School, Western Reserve University, Cleveland.

* This investigation was undertaken at the request and under a grant of the Committee on Therapeutic Research, Council on Pharmacy and Chemistry, American Medical Association.

1. Scripture, E. W.: The New Psychology, 1897.

value would be the third number, 60. Exactly the same procedure is used, however large the number of cases in a group.

The chief results of the investigation may be summed up as follows: It has been possible to state definitely what is the mean toxic dose of the different salicylates; that there is practically no difference between the toxicity of the synthetic and natural sodium salicylates and oil of gaultheria (oil of wintergreen), but that apparently there is some difference with Diplosal and aspirin. The toxic dose of the salicylates was not modified by certain factors, such as the black and white races; ranges of ages between 16 and 75 years; male and female sexes (considering the weight), various diseased conditions, and therapeutic response.

I. MEAN TOXIC DOSES OF THE VARIOUS SALICYLATES

In this hospital the routine of administration of the salicylates aims at the attainment of symptoms of intoxication by the drug. That is, the salicylate is given in doses of from 10 to 20 grains every hour until symptoms of intoxication begin to appear, when it is stopped. In this way from 200 to 250 grains would be administered within twenty-four hours. Intoxication is indicated by the appearance of headache, nausea, vomiting, ringing in the ears or deafness, rarely delirium and hallucinations, and sometimes diarrhea. The salicylate is usually given in conjunction with sodium bicarbonate as a prophylactic against acidosis. The urine is regularly examined for the presence of albumin, casts, acetone and diacetic acid.

In the records, the individual toxic symptoms are frequently not enumerated. The phrase "toxic with salicylates" was commonly used, and this has been accepted in lieu of a statement of the train of the symptoms of intoxication.

The results (Table 1) indicate the mean toxic doses of the different salicylates for both sexes. Table 2 shows the relative doses of the preparations for the two sexes.

TABLE 1.—THE MEAN TOXIC DOSES OF THE VARIOUS SALICYLATES

Preparation	Males (Adult)			Females (Adult)		
	Mean Toxic Dose (gr.)	Number of Doses*	Number of Different Individuals	Mean Toxic Dose (gr.)	Number of Doses*	Number of Different Individuals
Synthetic sodium salicylate.	180	317	205	140	203	128
Natural sodium salicylate.	200	9	7	135	8	2
Methyl salicylate (oil of gaultheria).	120†	16	4	120†	19	5
Acetylsalicylic acid (aspirin).	165	4	2	120	13	5
Salicylosalicylic acid (Diplosal).	100	12	5	83	3	1

* Used for calculating the mean. † Minims.

The Relative Toxic Doses for Males and Females.—Expressing the toxic dose for females as percentages of the toxic dose for males gives for synthetic salicylate 78, aspirin 73, oil of gaultheria 100, and Diplosal 83. This shows that the toxic dose of the salicylates is approximately 80 per cent. of that for males, corresponding very well with the average adult difference of weight in the two sexes (Vierordt)

TABLE 2.—RELATIVE TOXIC DOSES FOR THE TWO SEXES

	Males	Females
Diplosal	100	83
Oil of gaultheria	120	120
Aspirin	165	120
Synthetic salicylate	180	140
Natural salicylate	200	135

The Relative Toleration of the Different Salicylates.—This may be expressed as percentages of the tolerance of the synthetic salicylate (200 grains); accordingly the toxic dose of Diplosal is about 50, and oil of gaultheria and aspirin about 60 per cent. of that of synthetic sodium salicylate. Conversely, the efficiency of Diplosal is about twice; that of oil of gaultheria and aspirin about one and two-thirds times that of sodium salicylate.[2]

II. RANGE AND DISTRIBUTION OF TOXIC DOSES OF THE SALICYLATES

Besides the mean toxic dose, I have plotted the range and distribution of the toxic doses of the salicylates. These are shown for the synthetic salicylate in the curves of the chart, which was constructed from the data appearing in Table 3. The other salicylates have been tabulated in Table 4.

TABLE 3.—RANGE AND DISTRIBUTION OF TOXIC DOSES OF THE SYNTHETIC SALICYLATE

Range of Dosage (gr.)	Males			Females		
	Mean Toxic Dose (gr.)	Number of Doses	Number of Individuals	Mean Toxic Dose (gr.)	Number of Doses	Number of Individuals
0-20	...	..	..	20	1	1
20-40	...	..	..	35	2	2
40-60	60	10	8	60	9	8
60-80	80	9	8	80	15	14
80-100	100	19	19	100	19	18
100-120	120	36	34	120	43	38
120-140	140	33	32	140	26	26
140-160	160	48	47	160	27	27
160-180	180	32	31	180	20	19
180-200	200	56	53	200	25	19
200-220	220	18	16	210	5	4
220-240	240	10	10	240	2	2
240-260	255	10	10	260	4	4
260-280	280	9	9	280	1	1
280-300	300	13	10	300	4	4
300-320	320	3	3	...	..	..
320-340	335	4	4	...	..	..
340-360	360	2	2	...	..	..
360-380	...	..	..	...	..	..
380-400	...	..	..	...	..	..
400-420	415	3	3	...	..	..
420-440	...	..	..	...	..	..
440-460	...	..	..	...	..	..
460-480	480	1	1	...	..	..
1,300	1,300	1	1	...	..	..

Synthetic Salicylate in Males.—The curve shows that the extremes of toxic doses were 60 and 480 grains. In one case the unusually large dose of 1,300 grains was necessary to produce toxic symptoms. It is seen that the toxic dose ranged between 100 and 200 grains for 197, or 65 per cent., of male individuals. Between 200 and 300 grains the toxic dose was distributed among 55 individuals, or about 18 per cent.; below 100 grains, among 35 individuals, or about 12 per cent.; above 300 grains, among 14 individuals, or about 5 per cent.

Synthetic Sodium Salicylate in Females.—The extremes of dosage here were 20 and 300 grains. The

2. The salicylic acid content of the different salicylates is as follows: sodium salicylate, 85.6 per cent.; Diplosal, 106.2 per cent.; aspirin, 77 per cent., and methyl salicylate (oil of gaultheria), 99.7 per cent.

toxic dose ranged between 100 and 200 grains for the majority of individuals, namely, 129, or about 69 per cent.; below 100 grains for 43 individuals, or about 23 per cent.; above 300 grains for 15 individuals, or about 8 per cent.

TABLE 4.—RANGE AND DISTRIBUTION OF THE TOXIC DOSES OF OIL OF GAULTHERIA, "NATURAL" SALICYLATE, DIPLOSAL AND ASPIRIN

Range of Dosage (grains or minims)	Oil of Gaultheria		Natural Salicylate		Diplosal		Aspirin	
	Number of Males	Number of Females	Number of Males	Number of Females	Number of Males	Number of Females	Number of Males	Number of Females
10-20	..	.	.	1	..	..	..	..
20-40	..	..	..	..	..	1	..	1
40-60	1	1	..	1	1	..	..	..
60-80	1	3	1	1	..	..	..	..
80-100	3	2	1	..	1	..	1	1
100-120	3	4	..	1	..	..	..	..
120-140	3	..	1	..	1	..	1	1
140-160	2	2	..	1	..	..	1	..
160-180	2	..	1	..	..	..	1	..
180-200	1	3	1	1	1	..	..	..
200-220	..	..	..	..	..	..	..	..
220-240	..	1	..	..	..	..	..	..
240-260	1	1	..	1	1	..	..	..
260-280	..	..	..	..	..	..	1	..
280-300	..	..	..	..	..	..	..	..
300-320	..	..	..	1	..	..	..	..
320-340	..	..	..	..	..	..	..	..
340-360	..	1	1	..	..	..	..	..
360-380	..	..	..	..	..	..	..	..

The data in Table 3 and the course of the curves in Figure 1 indicate that more males than females tolerate higher doses of the synthetic salicylate, and that more females than males become toxic on smaller doses. For instance, between a range of 100 to 140 grains, 64 females, or 50 per cent., became toxic as against 66 males, or 33 per cent.; between 140 and 200 grains 65 females, or 50 per cent., became toxic as against 131 males, or 67 per cent.

Other Salicylates.—These are shown in Table 4. With oil of gaultheria (wintergreen), for most individuals (male and female) the range of dosage seems to lie between 100 and 200 minims. This appears to be about the same for aspirin, that is, between 100 and 200 grains, but somewhat less in males for Diplosal in which the greatest number of individuals tended to become toxic with a dosage of less than 100 grains. Concerning Diplosal, "natural" salicylate and aspirin, the number of doses and cases is so small that deductions are rather insecure.

Conclusions.—The toxic dose of the synthetic sodium salicylate for most male and female individuals (about 68 per cent.) lies between 100 and 200 grains. Outside of this range, comparatively small and large doses are confined to the minority. Practically the same holds true for the oil of gaultheria. As for the other salicylates, aspirin, Diplosal and "natural" sodium salicylate, the cases are too few to justify any conclusions except those shown by their general average (Table 1).

III. ABSENCE OF RELATION BETWEEN THE TOXIC DOSE OF SALICYLATE AND AGE (16 YEARS AND OVER)

The mean toxic dose, number of doses and the number of different individuals were ascertained and tabulated with respect to ranges of years. This was done for males and females and for each of the five different salicylates, as shown in Table 5.

This shows a close uniformity between the toxic doses corresponding to the different ranges of ages. This is especially true when the number of cases is large, as with the synthetic salicylate; here the toxic dose for all ages in males approximates the mean, 180, and in females the mean, 140.

As far as the other salicylates are concerned, the toxic doses corresponding to the ranges of ages also compare favorably with their mean toxic doses as recorded in Table 1. When large differences in the toxic doses appear, it is to be attributed generally to the comparatively small number of cases.

Conclusions.—The toxic dose of the different salicylates is not influenced by age between 16 and 75 years.

IV. APPROXIMATELY IDENTICAL TOXIC DOSE IN DIFFERENT RACES

In connection with this, data on only the synthetic salicylate were available. The mean of nine doses given to black adult males was found to be 180 grains, which corresponded exactly to the mean toxic dose (180 grains) for white adult males. With black adult females, the mean toxic dose of three records was 120 grains, against the mean toxic dose of 140 grains for white adult females.

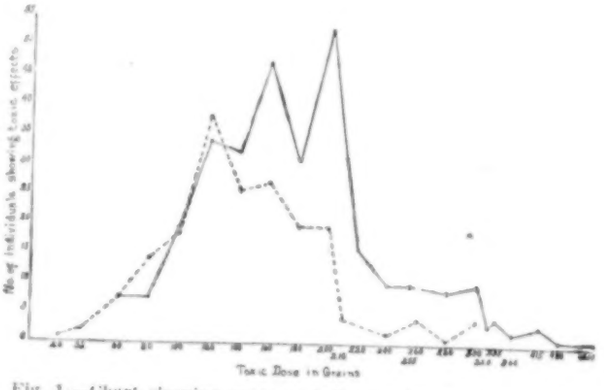

Fig. 1.—Chart showing range and distribution of the toxic doses of the synthetic salicylate. The continuous line represents males; the broken line, females.

TABLE 5.—RELATION OF TOXIC DOSE TO AGE

Range of Years	Males (Adult)			Females (Adult)		
	Mean Toxic Dose (gr.)	Number of Doses	Number of Different Individuals	Mean Toxic Dose (gr.)	Number of Doses	Number of Different Individuals
SYNTHETIC SALICYLATE						
16-20	160	41	27	140	55	35
20-30	200	96	65	120	66	46
30-45	160	133	87	120	46	31
45-60	200	42	30	160	33	16
60-75	165	4	3	145	3	2
"NATURAL" SALICYLATE						
16-20	200	1	1	216	4	2
20-30	260	3	2	40	2	1
30-45	200	3	2	90	2	1
45-60	75	1	1	..	..	..
OIL OF GAULTHERIA						
16-20	180M	1	1	200M	6	4
20-30	120M	5	3	160M	6	5
30-45	120M	8	5	110M	7	5
45-60	180M	1	1	..	..	..
ASPIRIN						
16-20	180	2	2	180	1	1
20-30	150	3	3	120	8	4
30-45	..	..	..	163	3	2
45-60	..	..	..	100	1	1
DIPLOSAL						
16-20	120	3	3	55	2	2
20-30	98	3	3	80	1	1
30-45	60	4	2	..	..	..
45-60	153	3	2	..	..	..

Conclusion.—There is practically no difference between the toxic doses of the synthetic salicylate for adult individuals of the black and white races.

V. PRACTICAL IDENTITY OF TOXIC DOSE OF DIFFERENT SALICYLATES IN VARIOUS DISEASED CONDITIONS

This is shown in Table 6. In all conditions in which there were three or more cases, the toxic dose of the synthetic salicylate ranged between 150 and 220 grains for males, and between 135 and 180 grains for females. Practically the same holds true for the "natural" sodium salicylate, the toxic dose for males being 200 grains and for females 150 grains. The same holds also for the oil of gaultheria, the toxic dose for males ranging between 146 and 180 minims; and for females between 100 and 160 minims. The number of cases for aspirin and Diplosal is too small to warrant the drawing of definite conclusions.

TABLE 6.—RELATION OF THE TOXIC DOSE OF THE DIFFERENT SALICYLATES TO DISEASED CONDITIONS

Diseased Condition	Males (Adult)			Females (Adult)		
	Mean Toxic Dose (gr.)	Number of Doses	Number of Different Individuals	Mean Toxic Dose (gr.)	Number of Doses	Number of Different Individuals
SYNTHETIC SALICYLATE						
Rheumatic fever	180	226	151	140	114	70
Subacute rheumatism	160	41	29	135	36	27
Syphilitic arthritis	218	12	3	...	...	..
Gonorrheal arthritis	170	4	3	180	6	5
Sciatica	150	8	8	140	6	6
Infectious arthritis	220	6	4	150	5	4
Arthritis deformans	75	1	1	170	12	5
Other conditions*	176	21	15	119	11	11
"NATURAL" SALICYLATE						
Rheumatic fever	200	8	8	150	5	2
Other conditions†	158	3	2	90	1	1
OIL OF GAULTHERIA						
Rheumatic fever	180M	5	4	160M	13	9
Gonorrheal rh'matism	100M	8	4	...	...	..
Other conditions ‡	146M	3	3	100M	3	3
ASPIRIN						
Rheumatic fever	173	3	3	130	8	4
Other conditions §	140	1	1	108	5	4
DIPLOSAL						
Rheumatic fever	120	7	7	75	2	2
Other conditions ¶	68	5	3	40	1	1

* Among males, rheumatic spondylitis, muscular rheumatism, chorea and rheumatic fever, rheumatic purpura, gout, cerebral rheumatism, chorea alone, acute tonsillitis, influenza, acute synovitis; no diagnosis in one case. In females, acute tonsillitis, chorea; no diagnosis in one case.

† In males, gonorrheal arthritis. In females, chronic arthritis, subacute arthritis.

‡ In males, subacute rheumatism, chorea, rheumatic spondylitis. In females, subacute rheumatism, chronic arthritis, acute arthritis.

§ In females, gout, chorea, subacute neuritis, neuritis and polyarthritis. In males, tonsillitis.

¶ In males, subacute arthritis, infectious arthritis. In females, tonsillitis.

Conclusions.—As far as the synthetic salicylate is concerned, the toxic dose is practically the same in various diseased conditions in adult males and females. This probably holds true for the other salicylates.

VI. RELATION OF THERAPEUTIC EFFECT TO TOXIC DOSE OF THE SYNTHETIC SALICYLATE

It would be of considerable practical importance to know if a given patient with a given diseased condition will be therapeutically benefited by the average toxic dose of a salicylate. To gain some idea concerning this the data were examined with a view to determine what, if any, relation exists between a single toxic dose of the synthetic salicylate and the "therapeutic response" in various diseased conditions. By "therapeutic response" is understood the clinical therapeutic result obtained after a toxic dose of the salicylate. The "therapeutic responses" were arbitrarily divided into three classes:

1. Complete therapeutic response, which refers to a complete disappearance of the objective symptoms, such as swelling, tenderness and redness of the joints involved, return of the temperature to normal, diminution of the pulse-rate and respiratory rate, absence of sweating; and abatement of the subjective symptoms, such as pain in the joints, the return of the sensation of well-being and the return of the use of the affected parts.

2. Incomplete therapeutic response, which refers to a partial abatement of the subjective and objective symptoms as mentioned above.

3. No response, by which is meant no change in the progress of the diseased condition during the course of salicylate medication.

In this connection only the synthetic sodium salicylate was investigated, since the number of cases in which the other salicylates were used was so small that no definite conclusions could be drawn.

Conclusion.—Table 7 shows that the therapeutic response in various diseased conditions does not modify the toxic dose of the synthetic salicylate. This is true for both males and females, although there appears to be a tendency toward smaller corresponding doses among the females.

TABLE 7.—RELATION OF THE THERAPEUTIC EFFECT TO THE TOXIC DOSE OF THE SYNTHETIC SALICYLATE

Diseased Condition	Therapeutic Response	Males (Adult)		Females (Adult)	
		Mean Toxic Dose (gr.)	Number of Individuals	Mean Toxic Dose (gr.)	Number of Individuals
Rheumatic fever	Complete	200	75	180	33
	Incomplete	173	16	150	6
	No	250	1	140	1
Subacute rheumatism	Complete	160	8	150	8
	Incomplete	180	4	120	5
	No	147	3	105	2
Sciatica	Complete	...	..	...	..
	Incomplete	160	6	110	2
	No	120	1	115	2
Other conditions	Complete*	159	9	80	1
	Incomplete†	228	5	152	3
	No‡	188	2	142	3

* The conditions represented here are as follows: Males, one case each of infectious arthritis, rheumatic spondylitis, muscular rheumatism, acute tonsillitis, gout, influenza, one case with no diagnosis and two cases of rheumatic purpura; in females, acute tonsillitis, one case.

† In males, one case each of synthetic arthritis, cerebral rheumatism, acute synovitis and two cases of gonorrheal arthritis; in females, one case each of arthritis deformans and chorea.

‡ In males, one case each of chorea and arthritis deformans; in females, two cases each of infectious arthritis and gonorrheal arthritis, and one case of arthritis deformans.

VII. THERAPEUTIC EFFICIENCY OF TOXIC DOSE OF SYNTHETIC SALICYLATE GREATEST IN RHEUMATIC FEVER

Table 8 indicates that the therapeutic efficiency of the synthetic salicylate is greatest in acute rheumatic fever, in which it gave complete therapeutic responses in 81.8 per cent. of males and females, and complete failure in only 1.6 per cent. In subacute rheumatism, the efficiency of the salicylate is not so great as in the acute fever. About one-half of the cases showed complete therapeutic responses, and 16.6 per cent. no responses. In sciatica, no case with a complete therapeutic response is recorded and 37.2 per cent. showed no responses whatever.

TABLE 8.—THERAPEUTIC EFFICIENCY OF THE TOXIC DOSE OF THE SYNTHETIC SALICYLATE IN DISEASED CONDITIONS

Therapeutic Response	Acute Rheumatic Fever		Subacute Rheumatism		Sciatica		Other Conditions *	
	Number of Cases	Per Cent.	Number of Cases	Per Cent.	Number of Cases	Per Cent.	Number of Cases	Per Cent.
Complete	108	81.8	16	53.3	0	0	10	41.6
Incomplete	22	16.6	9	30.0	8	72.7	7	29.1
No	2	1.6	5	16.6	3	27.2	7	29.1
Total	132	....	30	....	11	....	24	....

* See foot-note to Table 7.

For other conditions the therapeutic efficiency of the synthetic salicylate appears to be quite variable, and inasmuch as the number of cases for any particular condition was very small, no definite conclusions could be drawn for the individual condition. Collectively, 41.7 per cent. showed complete responses, 29 per cent. none whatever.

Conclusions.—The therapeutic efficiency of the synthetic salicylate is greatest in acute rheumatic fever. Subacute rheumatism and other conditions are also often relieved completely, but the percentage of complete successes is not nearly so great, and the percentage of failures much higher. In sciatica no complete relief was obtained, but the majority of patients showed more or less relief.

VIII. FREQUENCY OF OCCURRENCE OF ALBUMINURIA AFTER TOXIC DOSES OF SYNTHETIC SODIUM SALICYLATE IN FEBRILE AND AFEBRILE CONDITIONS

The administration of salicylate is believed by some to cause renal irritation and albuminuria, while others believe that it may lessen albuminuria in rheumatic fever. Our data on this point were not wholly satisfactory, for in no case was there a record of the observation of albumin before administration of the salicylate. This, in general, holds for all the urinary statistics such as the presence or absence of casts, blood, acetone and diacetic acid. Notwithstanding these difficulties, an attempt has been made to throw some light on the occurrence of albuminuria in connection with salicylate.

The occurrence of albuminuria in afebrile conditions in connection with medication, such as the toxic dose of a salicylate, presumably would be due to the use of the drug. The absence of albuminuria under similar conditions would indicate that there is no relation between the medication and albuminuria.

The results are shown briefly in Table 9. It will be seen that in males albuminuria is much more frequent in febrile than in afebrile conditions. This suggests strongly that the albuminuria is due to the fever rather than to the salicylate. What part, if any, the salicylates play in the production of the albuminuria can be settled only when more carefully collected data are available.

IX. INDIVIDUAL IDIOSYNCRASY TOWARD TOXIC DOSES OF THE SYNTHETIC SALICYLATE

The clinical data presented in this paper show that the toxic dose of the synthetic sodium salicylate ranges between 100 and 200 grains for the majority of adult individuals of both sexes. Many of the records, however, showed variations in dosage below 100 and above 200 grains. These records were examined to ascertain what, if any, relations exist between these variable doses and such factors as age, sex, race and diseased conditions. The effect of repeated dosage in the same individual was also studied.

TABLE 9.—OCCURRENCE OF ALBUMINURIA IN SALICYLATE MEDICATION

Diseased Condition	Males		Females	
	Total Number of Individuals Tested for Albumin	Per Cent. Showing Albumin	Total Number of Individuals Tested for Albumin	Per Cent. Showing Albumin
Rheumatic fever	138	67	86	82
Subacute rheumatism	26	46	33	52
Other febrile conditions *	22	68.2	15	73.3
Other afebrile conditions †	13	23	13	69

* In males: gonorrheal arthritis, 3 cases; infectious arthritis, 5 cases; tonsillitis, 1 case; syphilitic arthritis, 3 cases; muscular rheumatism, 2 cases; chorea plus rheumatic fever, 3 cases; rheumatic spondylitis, 2 cases; cerebral rheumatism, 1 case; acute synovitis, 1 case; influenza, 1 case. In females: gonorrheal arthritis, 4 cases; infectious arthritis, 5 cases; tonsillitis, 6 cases; rheumatoid arthritis, 1 case.

† In males: gout, 1 case; chorea, 1 case; arthritis deformans, 1 case; rheumatic purpura, 1 case; no diagnosis, 1 case. In females: chorea, 1 case; arthritis deformans, 5 cases; chronic rheumatism, 2 cases; subacute rheumatism, 1 case; no diagnosis, 1 case.

Table 10 indicates that there is no relation between these different factors and idiosyncrasy to toxic doses of the salicylate. It is seen that the total number of doses representing ranges below 100 grains is greater among females (71 per cent.) than among males. On the other hand, the total number of doses ranging above 200 grains is greater for males (80 per cent.) than for females. This would indicate, in general, a somewhat greater susceptibility of females to small doses, and greater resistance of males toward larger doses of the salicylate. There is a uniform distribution of young and old male individuals (ranging between 19 and 54 years) for doses of from 220 to 480 grains. One man, aged 29, required the exceptionally large dose of 1,300 grains. Practically the same is true of the females; that is, ranges of years vary between 17 and 52 years, and doses between 210 and 300 grains. As to toxic doses below 100 grains for males, the toxic doses range between 50 and 90 grains and the ages between 16 and 50 years; for females, the doses range from 20 to 90 grains and the ages between 16 and 60 years.

TABLE 10.—RELATION OF IDIOSYNCRASY AND AGE, AND OF IDIOSYNCRASY AND RHEUMATIC FEVER

	Males		Females	
	Small Doses	Large Doses	Small Doses	Large Doses
Range of dosage.	50 to 90 grains.	220 to 480 grains.	20 to 90 grains.	210 to 300 grains.
Number of doses.	19	74	32	13
Range of years.	16 to 50 average, 28	19 to 57 average, 30	16 to 60 average, 32	17 to 52 average, 29
Percentage of rheumatic fever	80 per cent.	65 per cent.	44 per cent.	46 per cent

The majority of the diseased conditions in both sexes are represented by acute rheumatic fever. The small

number of other conditions is uniformly distributed among the ranges of small and large doses in both males and females.

There is practically no relation between race and the different doses so far as the small number of individuals of other than the white race permits the drawing of any conclusions. Nearly all of the individuals belonged to the white race.

Accurate statistics as to the body-weight were not available.

Many of the patients received repeated toxic doses of the salicylate. These were divided into two groups: (1) those who became toxic with doses which varied but little (by less than 60 grains); (2) those whose toxic doses varied considerably (more than 60 grains). The data have been placed in Table 11, which shows the doses in order of their administration at the bedside. This shows that by far the greater number of patients with idiosyncrasies (71 per cent. of males and 60 per cent. of females) belong to the second or variable group; that is, their tolerance varied greatly at different times. There is scarcely any tendency among the doses to be arranged in ascending or descending orders, so that use of salicylates does not increase either tolerance or susceptibility.

TABLE 11.—INDIVIDUAL IDIOSYNCRASY TOWARD THE SYNTHETIC SALICYLATE

Number of Case	Females: Several Toxic Doses Approximately Constant	Females: Several Toxic Doses Variable
6458	.....	100; 1,300
9345	.....	340; 480; 260; 280; 200
11060	340; 300	.....
2462	.....	330; 135
9250	.....	330; 60; 160; 200
10246	.....	320; 280; 160; 180
10206	280; 300	.....
2917	.....	195; 75
3626	.....	150; 255
10207	.....	180; 300; 120
9334	260; 200; 240	.....
6482	.....	100; 60; 240
2611	.....	265; 300; 80; 180; 120
10366	280; 220; 220	.....

Number of Case	Males: Several Toxic Doses Approximately Constant	Males: Several Toxic Doses Variable
3155	.....	110; 300; 300; 190; 150
9338	.....	140; 180; 260
11119	.....	100; 260
3123	.....	180; 190; 260; 285; 300; 13
2652	.....	160; 30; 60
10416	80; 100	.....
8406	.....	80; 160
3496	.....	120; 80; 55
6136	60; 60	.....
2824	40; 90; 70	.....
7164	80; 70	.....
5630	.....	60; 120; 160; 180; 200
7544	120; 80	.....
7737	100; 80; 120	.....
3728	.....	300; 80

CONCLUSIONS

The differences found in the toxic doses of the synthetic salicylate below 100 and above 200 grains, and their variability, cannot be attributed to the influence of such factors as age, sex, race and diseased condition. There are no relations between small and large doses of the salicylate and increased susceptibility and resistance, respectively, in the same individual. There is no demonstrable habituation to the synthetic sodium salicylate.

SUMMARY†

1. The mean toxic doses of the different salicylates for adult males and females, respectively, are 180 and 140 grains of the synthetic sodium salicylate; 200 and 135 grains of the natural sodium salicylate; 120 minims of the oil of gaultheria (methyl salicylate); 165 and 120 grains of acetylsalicylic acid (aspirin); and 100 and 83 grains of salicylosalicylic acid (Diplosal). For females the toxic dose of the salicylates is approximately 80 per cent. of that for males.

The toxic dose of salicylosalicylic acid is about 50 per cent.; that of methyl salicylate and acetylsalicylic acid about 60 per cent. of that of sodium salicylate.

2. The toxic dose of the synthetic sodium salicylate for the majority, or about 68 per cent., of individuals of both sexes lies between 100 and 200 grains. Practically the same is true of the methyl salicylate.

3. The toxic dose of the different salicylates is not influenced by age between 16 and 75 years.

4. The toxic dose of the synthetic salicylate is the same in white and colored races.

5. The toxic dose of different salicylates is practically the same in various diseased conditions.

6. The therapeutic response in various diseased conditions does not modify the toxic dose of the synthetic salicylate.

7. The therapeutic efficiency of synthetic sodium salicylate is greatest in rheumatic fever and, not infrequently, partial relief and even complete relief are obtained in other conditions.

8. Presumably, there is no relation between the occurrence of albuminuria in febrile and afebrile conditions and toxic doses of the synthetic salicylate.

9. Individuals show idiosyncrasy toward toxic doses of the synthetic salicylate, but no connection was found between these idiosyncrasies and the factors of age, sex, race and diseased condition. The idiosyncrasy generally varies in the same patient, and is not influenced by previous salicylate medication.

I wish to express my thanks to Professor Hoover, chief of the medical clinic, to the hospital authorities, who kindly permitted the use of the hospital records, and to Dr. H. L. Taylor, resident physician, who in many ways was helpful to me in securing material. I am very grateful to Professor Sollmann for many valuable suggestions, and to him and to Dr. Hoover for criticizing the manuscript.

AUTOSEROTHERAPY IN SEROFIBRINOUS PLEURISY

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At the International Medical Congress in Rome in 1894 Dr. V. Gilbert stated that since 1891 he had treated tuberculous pleurisy with effusion by the subcutaneous injection of a small amount of the fluid withdrawn from the pleural cavity with an aspirating syringe. He found that within a few days after this injection, which he called "autoserotherapy," the serofibrinous exudate in the pleura disappears and the patient recovers. This method of treatment has been rather slow in gaining recognition, and was almost forgotten. During recent years, however, there have been reports from various clinics in Europe tending to show that there is

† The numbers of the summary correspond to those of the sections of the text.

great value in autoserotherapy, and its general adoption by the profession has been strongly urged. The animal experiments recently performed by Georg Eisner[1] show quite conclusively that there is a scientific basis for this mode of treatment, and that in experimental pleurisy autoserotherapy is of great value. Indeed, it appears from Eisner's experiments that it is not only the withdrawal of the fluid which mechanically stimulates absorption, as has been maintained by some, but it is the subcutaneous injection of the fluid that is responsible for the absorption of the exudate in autoserotherapy.

During the last four years I have tried this method of treatment in twelve cases of pleurisy with effusion, and although I cannot say that it is a specific, because it has not cured every patient, I believe that it has sufficient merit to warrant its more general adoption.

The technic is that of exploratory puncture. All antiseptic precautions must be strictly observed in the preparation of the instrument and the field for puncture. An ordinary aspirating syringe is used. The patient is placed in a sitting position and the needle is inserted at a place where the fluid is most likely to be found. After withdrawal of a syringeful of fluid the needle is immediately reinserted into the subcutaneous tissue of the chest, preferably the interscapular space, and the fluid is slowly injected. The fluid may also be injected in other regions, such as the cellular tissue of the abdomen or in the lumbar region, etc. A better way is the following: After aspiration of a few cubic centimeters of fluid from the chest the needle is not completely withdrawn, but turned around perpendicularly to the chest wall and inserted into the subcutaneous tissue at the site of the puncture and the aspirated fluid is slowly expelled. Some operators have thus injected, with large syringes, 10 or 15 c.c. and more of fluid under the skin. I have usually been satisfied with from 2 to 5 c.c., and have found it just as satisfactory in suitable cases as the injection of larger quantities. In fact, I am convinced that the quantity of fluid injected is not of importance. In some cases the injection of large quantities has been of no avail, while in suitable cases 2 c.c. of fluid were effective in inaugurating a process of absorption which soon terminated in a cure.

In suitable cases within twenty-four hours after the injection there is observed an improvement in the general condition of the patient; an increased diuresis, an amelioration of the dyspnea, and the physical signs show that the upper level of the fluid in the chest begins to sink, and within a week or ten days no fluid at all can be discovered. Some writers have even stated that after autoserotherapy there is less likelihood of the formation of the large fibrous bands so common after aspiration of fluid from the chest, which are responsible for many discomforts in later life. In my experience this could not be proved. Indeed, it appears to me that, except for the absorption of the exudate, autoserotherapy has no effect. Some patients developed tuberculosis of the lungs later on, while those who were tuberculous at the time they suffered from pleurisy continued in about the same condition, as if they had had no pleurisy in the course of their trouble.

In some cases a single injection is sufficient to effect a cure within several days, in others it may be necessary to repeat the procedure several times before the fluid is absorbed completely, while in some others, though proportionately few, as was already stated, autoserotherapy is of no use at all. On the other hand, no dangerous or even threatening symptoms have ever been observed by any one who tried this method of treatment, which may be considered altogether innocuous.

Nine of the twelve cases which I have treated were distinctly benefited. In one the result was doubtful, and in two it failed utterly. The first case was one in which the effusion in the chest had been present for four weeks, showing the usual effects of a large effusion—displacement of the neighboring organs, dyspnea, slight fever, anorexia, debility, etc. Seven hours after the first injection of 3 c.c. of pleural fluid the fever increased 1.4 F., but the next morning it dropped to 99.8 F., and twenty-four hours later it was normal and remained so indefinitely. The quantity of urine was increased; the appetite and the general condition of the patient improved to such an extent that he wanted to walk out on the third day, which he had not ventured during the preceding month. The upper level of the fluid, which before autoserotherapy had reached the fifth thoracic spine posteriorly, began to sink, reaching the seventh thoracic spine within three days, and ten days after the injection no fluid could be found by the usual methods of physical examination. The disappearance of the palpatory, percutory and auscultatory signs went hand in hand with the disappearance of the fluid in the chest, and the displaced organs (the heart, liver, etc.) showed a rapid regression to their normal positions. Considering that for a month before the injection the fluid showed no tendency to absorption, and that after this mode of treatment nothing else was done to assist absorption, it would seem that the injection may be safely credited with the cure of this case.

In another case, that of a child of 5 with a pleural effusion filling about three-fourths of the right chest and producing profound dyspnea, etc., the results of autoserotherapy were even more striking and convinced me of its great value. During the three weeks that this effusion was in the chest, exploratory puncture was performed twice, and once 7 ounces of fluid were aspirated with a Potain apparatus, but the fluid reaccumulated within three days. Soon after the injection of 3 c.c. of fluid into the subcutaneous tissue of the chest the effusion began to show signs of absorption and disappeared within a week. That autoserotherapy was responsible for the cure in this case appears to be beyond question. Some writers have said that the removal of even a small quantity of fluid stimulates absorption and that inasmuch as about 80 per cent. of cases of pleurisy with effusion tend to spontaneous recovery, which is about the percentage of cases cured by autoserotherapy, the latter mode of treatment is of no value. But in a case in which exploratory puncture was done twice, and aspiration of a comparatively large quantity of fluid once without any effect, while the injection of 3 c.c. of fluid was the starting-point for the absorption of the exudate, autoserotherapy can be considered of great value.

In a case showing an effusion reaching posteriorly to a level of the sixth thoracic spine, 4 c.c. of fluid were injected subcutaneously on the twelfth day after the onset of the disease. I saw this patient again two days later and found the level of the fluid at the angle of the scapula, and ten days later no fluid at all could be found by the usual methods of physical exploration. In this case the quantity of urine voided increased within six hours after the injection. The temperature, which was of a remittent type, 99 to 100 F. in the morning and 101 to 102.5 F. in the evening, was but slightly affected by the disappearance of the effusion. After the

1. Eisner, Georg: Experimentelle Untersuchungen über Autoserotherapie, Ztschr. f. klin. Med., 1912, lxxvi, 34.

absorption of the fluid in the chest it was noted that early in the morning the temperature was slightly subnormal, 96.5 to 98 F., and 100 to 101 F. in the evening. A tuberculous lesion in the left apex, as well as some friction sounds and defective motion at the left base, were diagnosed.

In the case of a child 4 years old the effusion had existed three weeks before autoserotherapy was applied. The right chest was filled with fluid up to the third rib, the heart was displaced to the left, the liver pushed downward, etc. The fever was rather high, reaching 104.5 F. on some days, and for two weeks before autoserotherapy was applied it was never found lower than 102 F. Within twenty-four hours after the first injection the fever dropped to 101 F., the dyspnea was greatly relieved and the rate of respiration dropped from 40 to 28 per minute. The upper level of the fluid sank, reaching the seventh rib on the sixth day, but remained there for a week. Another injection was then made, and repeated every two days for the next two weeks, when no fluid could be found in the chest, the child making an uneventful recovery.

An interesting case was that of a young man of 25 who came to my office for advice concerning the suggestion given him by a physician, that he must leave for the mountains because of tuberculosis of the lungs. Physical exploration of the chest revealed an effusion in the left pleura extending up to the sixth thoracic spine. This was immediately confirmed by an exploratory puncture. I did not completely withdraw the needle, but immediately turned it and injected the fluid contents of the syringe, about 3 c.c., into the subcutaneous tissue at the site of the puncture. The patient's history was rather suggestive. He had been coughing for three months, had slight fever, malaise, and later dyspnea on the slightest exertion. At no time had he had any acute pain in the chest. He had lost 18 pounds in weight during the three months. Treated at first for bronchitis, he was finally advised to go to the mountains to cure what was considered pulmonary tuberculosis. My request that he call again within twenty-four hours was disregarded by the patient, but he showed up again ten days later, telling me that he could not call on the appointed day because he was too sick to leave his bed on a rainy day. But on the next day he began to improve, his strength showed signs of returning, his appetite was improving and the dyspnea had almost disappeared. While before the injection he could not sleep on his right side, he noted that during the last three days, one week after the injection, it made no difference to him on which side he reclined. His cough and expectoration increased, but he did not complain because, as he put it, he found it easier to "bring up phlegm." He gained 4 pounds in those ten days. The level of the fluid was now at the seventh thoracic spine. Another puncture with reinjection of the fluid was made, and the patient was given a prescription calling for 5 grains of potassium iodid three times a day. Within four weeks his condition had improved to the extent that he could resume his work, that of a watchmaker. I examined this patient one year later and found him in excellent condition, except for some defective resonance and faulty motion at the right base, which remained as traces of his pleurisy.

But not all my cases of autoserotherapy were successful. In one patient with a large effusion in the right side the injection of 5 c.c. of fluid on alternate days six times did not relieve the condition at all. On the contrary, the amount of fluid in the chest increased in spite of the treatment, with a concomitant aggravation of the general condition, especially the dyspnea. The displacement of the mediastinum, liver, etc., was extreme, so that tapping of the chest had to be done; 30 ounces of fluid were withdrawn on one occasion and 20 on another. Although at each tapping I reinjected about 10 c.c. of the fluid under the skin, I cannot say that the eventual disappearance of the effusion could be attributed to the autoserotherapy in this case. In another case of advanced pulmonary tuberculosis in an old man under my care in a hospital several injections of rather large quantities of fluid, 10 to 15 c.c. each time, had no effect. Aspiration had to be resorted to on repeated occasions, but the pleural cavity refilled quite promptly, until finally a fatal issue relieved the man of his severe sufferings.

On the whole, it appears to me, judging from the twelve cases of pleurisy which I have treated by this method, that autoserotherapy is an excellent means at our command in cases of serofibrinous pleurisy, and should be tried in every case of pleural effusion. While not all patients will be cured, in some the course of the disease may be shortened, while others, who would otherwise suffer severely for weeks, may be greatly relieved.

Altogether there have not been reported a sufficient number of cases in medical literature to place autoserotherapy on a firm foundation as a specific in pleurisy with effusion. Besides the few cases reported by Gilbert[2] and Fede,[3] who were the first to suggest this method of treatment, there have also been reported successful cases by Schnütgen,[4] Geronzi,[5] Joseph Dodal,[6] Zimmermann,[7] Dumitriu,[8] Sarcinelli, Enriquez, and Durand and Weil.[9] Tchigayeff[10] reports fifty-six cases in which forty-two were quickly and completely cured; in eight the success was incomplete, and only in six could the treatment be considered a failure. Tchigayeff concludes that the sooner the treatment is begun, the surer one is of succeeding and the quicker the cure. In his experience, amelioration of the subjective difficulties was a constant phenomenon. It was evident that in tuberculous patients pleural effusion was absorbed, yet there was no apparent influence on the course of the lesion in the lung. M. Marcou[11] reports 160 cases. He observed an increase in the temperature of about 1° F. during the evening after the injection, but beginning with the next morning the fever would drop and keep on sinking till it reached the normal limits. Marcou is emphatic in his statements that he observed a prompt arrest in the progress of the disease after autoserotherapy, although he could not assign any specific action to this mode of treatment. Rudisch,[12] of New York, reports three cases which were successfully treated by autoserotherapy, and says that he is sufficiently encouraged to urge its more extensive application.

The question how autoserotherapy promotes the absorption of pleural effusions has been a source of

2. Gilbert: Gaz. d. hôp., 1894, p. 560; L'autosérothérapie de la pleurésie sérofibrineuse, Rev. méd. de la Suisse Rom., 1910, p. 24.
3. Fede: Riforma Med., xxii, No. 39.
4. Schnütgen: Die Autoserotherapie bei serös-fibrinöser Pleuritis, Berl. klin. Wchnschr., 1909, No. 3, p. 97.
5. Geronzi: Med. ital., Napoli, 1907, ii, No. 4.
6. Dodal, J.: Zur Autoserotherapie bei exudativer Pleuritis, Wien. med. Wchnschr., 1910, p. 455.
7. Zimmermann: Zur Autoserotherapie der exudativen Pleuritis, St. Petersburg med. Wchnschr., 1908, No. 34, p. 461.
8. Dumitriu: Spitalul, Bucharest, 1910, No. 15.
9. Durand and Weil: Bull. et mém. Soc. méd. d. hôp., June 4, 1904.
10. Tchigayeff: Russk. Vrach, 1910, No. 51.
11. Marcou: L'autosérothérapie pour activer l'absorption des épanchements pleuraux, Presse méd., 1909, No. 71, p. 627.
12. Rudisch, J.: Autoserotherapy in Chronic Pleurisy with Effusion, Med. Rec., New York, April 8, 1911.

speculation to various writers. As already stated, some authors (Nassetti,[13] Szurek,[14] Arnsperger,[15] Hochhaus,[16] etc.) are under the impression that all the reported favorable cases do not prove that the subcutaneous injection of the fluid is responsible for the absorption of the exudate. It is argued that about 80 per cent. of all cases of pleurisy with effusion recover spontaneously, and inasmuch as autoserotherapy cures about the same proportion of cases, it cannot be concluded that it is superior to expectant treatment. Other writers have argued that the absorption of an exudate often takes place after an ordinary exploratory puncture, that is, through mechanical stimulation, and that in autoserotherapy a small quantity of fluid is always withdrawn, thus creating conditions favorable for the absorption of the exudate. But as I have shown, there are cases in which repeated exploratory punctures and even tappings were not effective, while autoserotherapy promptly stimulated complete absorption of the exudate.

Gilbert,[2] the discoverer of this method of treatment, believes that the exudate, especially in tuberculous pleurisy, contains the specific toxins of the tubercle bacilli, and many other writers have accepted this view. Some think that the exudate contains specific antibodies which accumulate in the chest, and that when injected subcutaneously they are absorbed immediately into the circulation and exert an influence on the absorption of the fluid. Others think that there is in pleurisy an accumulation of autolytic products of cell metabolism which, when injected subcutaneously, bring about absorption of the exudate. This appears to be confirmed by the observation of Zimmermann[2] that after autoserotherapy there is to be found a striking leukocytosis. In a case in which Zimmermann made careful blood-counts, he found that before the injection of the pleural fluid the number of leukocytes was 8,500, while soon after the injection the number rose to 10,312. Within twenty-four hours the number of leukocytes again fell to normal. After another injection, four days later, the leukocyte count rose again from 7,812 to 15,000. This observation would seem to confirm the suggestion made by some that the accumulation of autolytic products in the exudate—synthetic albumins and products of cell metabolism—are responsible for the absorption of the exudate after autoserotherapy (Senator and Schnütgen). Zimmermann's experiment, showing that an injection of a solution of peptones brings about a leukocytosis and also an increased diuresis, just as after autoserotherapy, is confirmatory of this view.

None of these theories has been proved. But the recent experimental investigations by Georg Eisner[1] tend to give a scientific foundation to autoserotherapy. Eisner performed some interesting animal experiments with a view of ascertaining the mode of action of this therapeutic procedure. He induced pleurisy in rabbits by injecting sterile oil of turpentine into the pleural cavity, and by another method produced tuberculous exudates in guinea-pigs. His results throw some light on the mechanism of autoserotherapy. Thus, he found that while most clinicians observed an increase in the temperature of the patients after autoserum injections, animal experimentation did not work in this manner. He did, however, find a decided influence on the leukocyte count. After every injection of the sterile exudate the number of leukocytes manifested a decided tendency to rise. In some experiments this leukocytosis appeared within twenty-four hours after the injection, while in others it was three or four days before it became evident. Injections of tuberculous exudate were always followed by a sudden and marked increase in the number of leukocytes which lasted one day and receded just as quickly. In one case the increase in the number of leukocytes reached seven thousand, while in other cases the increase oscillated between three and four thousand. Control experiments showed no influence on the leukocyte count.

From his animal experiments Eisner concludes that there is beyond any doubt an increase in the number of white blood-cells, independent of any elevation of temperature, after the injection of tuberculous serum derived from a pleural exudate. It must, however, be borne in mind in this connection that hypodermic injections of sterile oil of turpentine often produce leukocytosis. Eisner could not find any trace of oil of turpentine in the pleural fluid obtained in his experiments, but as he tested this point only by the odor of the exudate, it cannot be stated positively that the fluid did not contain oil of turpentine in a high degree of dilution.

The suggestion that autolytic products of cell metabolism are the cause of the reaction after autoserum injections cannot be seriously considered, because of the short duration of the exudate at the time the experiments were made. Eisner is inclined to the hypothesis that the cause of the reaction was the presence of specific bodies in the exudate which were the cause of the increased leukocytosis. Whether there were also other bodies (autolytic products of cell metabolism) cannot obviously be definitely stated; nor is it definitely ascertained what kind of specific tuberculous bodies are active in such cases.

CONCLUSIONS

Autoserotherapy appears to be worthy of further and more general trial. Considering that it is absolutely devoid of any danger, that there have never been observed the slightest unfavorable effects on a patient, and that it can be performed by any one who can make an ordinary exploratory puncture, it ought to be tried in every case of pleural effusion in which the fluid is not purulent. Indeed, inasmuch as in practically every case of pleurisy showing signs of effusion exploratory puncture is to be done with a view to determining the character of the fluid in the pleural cavity, it is advisable, when the contents of the pleural cavity are found to be serous, that the needle should not be withdrawn completely, but that when its point is brought to the subcutaneous tissue it should be injected then and there. The quantity of fluid to be injected subcutaneously need not be very large; from 2 to 5 c.c. is quite enough. In favorable cases it will be observed that within two or three days the subjective symptoms—the pain, the dyspnea, the prostration, etc.—will be ameliorated or will entirely disappear, while physical exploration of the chest will show that the upper level of the fluid will be lower than it was before the injection. Within a week or ten days the fluid in the chest will disappear altogether in about 80 per cent. of cases. In some patients it may be necessary to repeat the treatment several times every two or three days before any salutary effects are evident. In about 10 or 15 per cent. of cases this mode of treatment seems to fail, but even here no harm is done to the patient.

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13. Nassetti: Riforma med., 1908, No. 39.
14. Szurek: Med. Klin., 1909, No. 44, p. 1665.
15. Arnsperger: Therap. d. Gegenw., 1911, p. 495.
16. Hochhaus: Deutsch. med. Wchnschr., 1909, No. 42, p. 1819.

SOME OLD PELVIC INFLAMMATORY DISEASES

THEIR NON-SURGICAL TREATMENT, WITH REPORT OF CASES

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Under the title, "Some Old Pelvic Inflammatory Diseases," I desire to call attention to a few affections of the pelvic organs which are commonly met by the general practitioner, but which he gives very little consideration or entirely overlooks in his management of diseases of the pelvic organs. I refer especially to chronic perimetritis with adhesions, chronic parametritis, shortening of the uterosacral ligaments with consequent retrodisplacement of the uterus, and lastly old pelvic cellular exudates. Kelly states that it is of the utmost importance that the general practitioner recognize clearly all his cases of pelvic inflammatory disease, so that proper treatment can be begun and these chronic sufferers relieved of their symptoms; but unfortunately, many of these conditions are not properly understood, no diagnosis is made, and the patient is given the usual routine treatment of tampons and douches.

We may divide our pelvic inflammatory cases into two classes. In the first class, we find among our patients some who are of a highly sensitive nature, and therefore difficult to examine, as any pressure, however slight, causes pain, which makes them so contract and stiffen the abdominal muscles as to render negative almost any method of examination. With a little patience, however, we can gain the confidence of these patients by the assurance that we do not intend to cause them any unnecessary suffering, and after their fears are allayed, we can gradually make a fairly thorough examination.

In the second class, we find the extraordinary cases. In these, the patient may have even wide-spread adhesions involving nearly all of the pelvic organs, yet may not suspect any pelvic disease, until some irregular menstrual function causes her to seek advice. Patients of this class can be thoroughly examined, a correct diagnosis made and appropriate treatment given.

The symptoms complained of in the diseases just mentioned consist of the usual train of gynecologic symptoms — dysmenorrhea, backache, leukorrhea, vague and obscure pains associated with headache, nausea and general malaise. The same symptoms may be caused by a variety of other pelvic diseases, as endometritis, salpingitis and ovaritis, so that the success of the treatment depends entirely on correct diagnosis. These forms of pelvic inflammatory disease may begin as an acute inflammation of the pelvic cellular tissue, or they may be chronic from the beginning and their cause may be puerperal, traumatic or from gonorrheic or other infections.

The diagnosis of chronic perimetritis with adhesions is made by bimanual examination. The outside hand is placed behind the uterus and holds that organ against the bladder, while, with the inside hand, the examiner presses his fingers between the folds of the uterosacral ligaments. He can then feel, if the uterus is held firmly with the outside hand, bands of adhesions running from the body of the uterus to the floor of the pelvis. There may be a number of these small fibrous bands and they feel about the size of heavy wrapping-cord. These adhesions when stretched or palpated are quite painful. This method is also employed when determining the condition of the uterosacral ligaments. These are felt in the culdesac of Douglas, just behind the cervix; when enlarged by inflammatory changes, they are much thicker, firmer and larger than usual and are very sensitive to pressure or stretching. The shortening or thickening of these two ligaments naturally pulls back the uterus, causing its retrodisplacement and, instead of finding the uterus forward near the symphysis, the examiner finds it drawn so far back in the pelvis that he is barely able at times to palpate it. This is the condition which is the cause of so many backaches in women which cannot be cured by tampons, hot douches, sitz-baths, etc. By bimanual traction and massage, the replacement of fixed retroverted and retroflexed uteri is accomplished, and absorption of adhesions is brought about in cases in which very little or no relief can be expected from any other method of treatment.

The system of treatment in the Allgemeines Krankenhaus in Vienna for the conditions mentioned above, which I have followed for the past year, is as follows: while the index and middle fingers of the left hand (or for obvious reasons the index-finger) steady and support the cervix by slightly lifting it up, the right hand by a series of rotary movements gently massages the uterus through the abdominal wall. The movements are all from the shoulder, the hand, wrist and elbow being free and not stiff. These movements are performed slowly, ten to fifteen times at the first treatment and, if no unusual pain or soreness follows, the same treatment can be carried out three times weekly, until the patient is relieved of her symptoms. Even in patients with rigid abdomen, the operator is able after a few treatments to massage the whole posterior body of the uterus, thus improving the blood-supply of the pelvic viscera and at the same time stretching the adhesions which keep the uterus in an abnormal position and lengthening the uterosacral ligaments. By the same series of movements through the abdominal wall, a retroverted uterus which is movable can be brought forward; the only change made is to place the inside fingers against the anterior portion of the cervix and push posteriorly, at the same time bringing the uterus forward, and installing a suitable pessary with the outside hand. Massage of this kind is also indicated in puerperal cases of retroversion, in which the uterus is heavy and congested. The muscular tone of the uterus is thereby improved and exudation and improved circulation result.

CHRONIC PARAMETRITIS

At the sides and on the floor of the pelvis between the peritoneum of the pelvis and the fascia which it overlies, there is a layer of loose fibro areolar tissue which is spoken of as the pelvic cellular tissue or parametrium. This is very often attacked by a specific or septic infection. These attacks may be acute or they may be chronic from the beginning. After treatment the inflammation either is resolved or causes atrophy or cicatrization of the cellular tissue.

Of lateral parametritis there are two forms, anterior and posterior. The anterior is more rare and sometimes extends over the surface of the bladder to the anterior wall of the abdomen. Chronic parametritis is sometimes found in virgins, the infection usually coming from the rectum; or the first attack may be due to an invasion from the intestinal tract about the appendix which eventually extends to the pelvic viscera. The causes are the same as in chronic perimetritis and shortening of the uterosacral ligaments. Freund gives as additional causes persistent masturbation, long-continued physical and mental suffering and malnutrition; he states that

a diminution of elasticity and an atrophy of the pelvic cellular tissue and the internal genitalia follow. Schultz has described a form of the disease called posterior parametritis, in which the folds of Douglas are short and inelastic. The symptoms in these cases are also similar to those described as occurring in chronic perimetritis, with the addition that these patients very often complain of dyspareunia.

DIAGNOSIS OF PARAMETRITIS

The diagnosis is made by palpation of the parametrium. When the examiner stretches with the fingers painful or sensitive areas which show evidences of narrowing or contraction the patient, as in the case of perimetritis, will complain of pain similar to that which she sometimes suffers. Scars in the vaginal vault, extending from the cervix, may be readily felt on palpation.

It is almost the usual routine with me to consider pain and tenderness, associated with swelling of the vaginal vault, the result primarily of diseased adnexa. In a great number of cases this is correct, but if one does not bear in mind the possibility of the existence of other diseases, grievous mistakes in diagnosis and treatment may be made. There are no hard-and-fast rules by which one may be guided in differentiating these conditions, but the physician must make a systematic examination, taking into consideration all the tissues and organs which are likely to be affected as the result of septic or specific inflammation.

A right-side parametritis can be, and often is, mistaken for appendicitis, as pressure low down in the right quadrant of the abdomen will elicit pain in both conditions; but, knowing the history of the case thoroughly, if we bear in mind the fact that the two affections frequently coexist, then by placing the examining finger in the vagina, putting the parametrium on a stretch, and at the same time the other hand over McBurney's point, the diagnosis can be easily made. Pelvic massage is absolutely contra-indicated in any acute inflammatory condition, in recent pus collections, in fibroids, ectopic pregnancy or in tubo-ovarian disease. My object, therefore, in relating the following cases is chiefly to show how often chronic conditions other than diseased uterine adnexa are met and how they can be relieved by pelvic massage.

CASE 1.—Mrs. N., aged 35, married five years, no children, one miscarriage at seven months, came under my care in January, 1910. Family history was negative. The patient denied all knowledge of gonorrheal infection. She had always been well up to three years previously, when she suffered for six months with mucous colitis and fermentative dyspepsia. She now complained of backache which was increased by moving around or standing, and pains situated deep in the right side of the pelvis, which occurred before, during and after menstruation, the latter lasting for a day or two at the most, the color of the menstrual fluid being very dark.

Vaginal examination showed the uterus anteflexed and retroposed. On bimanual palpation, the whole right vaginal fornix was found swollen, painful and tender to pressure and I stated in my notes at that time that, undoubtedly, the right tube was involved.

I treated the patient with tampons, saturated with boroglycerid, twice a week for two months and once a week for one month longer, besides giving her douches and tonics. She improved somewhat in general health, felt much stronger and not so nervous, but still continued to have backaches and pain during menstruation.

I did not see this patient again until November, 1911, when she stated that she still had the same symptoms and that, six months previously, she had been confined to her bed and told that she had appendicitis but that she had refused an operation. On examination I found the uterus anteflexed, but still further back in the pelvis than when I examined her two years prior to this time. I found the parametrium on the right side contracted and very painful and sensitive, the right tube only slightly enlarged, the ovary not palpable.

On examining the culdesac of Douglas, I felt numerous bands of adhesions running between the uterosacral ligaments, parallel with the uterus, which accounted for its being retroposed. I treated her on six or seven different occasions by pelvic massage, but the fourth week she failed to appear; a little later when she called she told me frankly that she did not see how those treatments were going to relieve her suffering, but that at her last period she had menstruated better than she had in three years and so had decided to continue treatment until she was well.

After three months, during which time I massaged the parametrium on the right side and, by bimanual traction and massage was able to stretch the adhesions that were keeping the uterus displaced posteriorly, I managed to bring the uterus to its normal position and thereby relieved the backache and the pain with which she had suffered. I met her a few weeks ago on the street, and she said that she felt perfectly well and now menstruated without pain and that the flow lasted three full days.

CASE 2.—Miss K., aged 21, called at my office, October, 1911. Family history was unimportant. She gave a history of having had pneumonia one year ago in March. For two years past she had had considerable pain in the right side for two days previous to menstruation, the flow being very scant, the time of its appearance irregular and the duration never over a day and a half. She soiled no more than two napkins during this period. She was unable to work the day after the pains came on. Six months previously she had been operated on for appendicitis, with the understanding that this would relieve the pains in her side.

Examination showed that, in addition to her other troubles, she had a simple goiter. Her appearance was decidedly anemic. There was a presystolic murmur of the heart, and her pulse was at all times over 100. Urine analysis was negative. Examination of the abdomen disclosed a small sinus in the appendicular scar, which was discharging because the remnants of a stitch had been left behind. The abdomen on the right side showed tenderness and sensitiveness to pressure which extended above McBurney's point. Patient denied having had gonorrhea or miscarriage. Vaginal examination showed the uterus somewhat enlarged, retroverted and very tender. The right side showed considerable thickening and swelling of the pelvic cellular tissue with the presence of an old exudate. In this case, not being able to palpate the tubes, I was not sure that there might not be a pyosalpinx. I gave the patient a very careful pelvic massage which caused her some pain. I then prescribed hot sitz-baths and tonics and advised her to keep off her feet for two weeks; this she said she could not do. I continued this treatment for four months, at the end of which time the mass on the right side had entirely disappeared. The patient suffered very little pain; the flow was increased to two and a half days, and she was able to work every day while menstruating.

CASE 3.—F. M., aged 29, German, single, first came under my observation eight years ago. Her mother died of cancer of the breast, aged 51. Father died of chronic interstitial nephritis, aged 65. The patient had had the usual diseases of childhood but had always been well up to her twenty-first year. Her menses appeared at 14 and she was perfectly regular for the following seven years; she then began to suffer with cramp-like pains and a dull heavy ache in the left pelvic region. She also began to have backache, especially, if she had to be on her feet for any length of time. After her menses stopped there appeared a milky discharge. At each succeeding period these symptoms increased and the pain continued at intervals in her side, even after she stopped flowing. After a time she suffered from pain daily, so that she was unable to lift anything without holding on to her side. The gonorrheal

discharge persisted. During the first day of menstruation she was compelled to remain in bed. She had been under treatment for three months when she came to see me, giving the above history.

Vaginal examination showed the uterus small and acutely anteflexed. There was extreme tenderness on both sides of the vagina; in fact every part touched was sensitive, and the tubes and ovaries could not be palpated. Examination of secretion taken from the cervix showed gonococci. I then gave the customary tampon treatments with hot douches, tonics, fresh air, etc., with an application of 10 per cent. silver nitrate solution to the cervical canal. I continued to treat the patient at least once a week for nearly a year. She improved in strength, suffered very little with backache but was compelled to remain in bed during the first day of menstruation.

On November, 1911, she again came to my office and said that she would like to begin treatment as she was just as bad as before and had lost nearly forty pounds. On examination at this time I found the uterus still undersized and anteflexed. There was not so much tenderness and pain from the examination; the tubes and ovaries could be easily palpated bimanually, showing no evidences of enlargement or tenderness; but running from the cervix, both right and left, scars of the parametrium were very easily felt, together with a shrinking of the cellular tissue. Placing the parametrium on a stretch caused so much pain that I took more care not to overstretch it. The diagnosis made was of parametritis on both sides and hypoplasia of the uterus. I gently massaged the parametrium on both sides, making the movements away from the uterus; then I inserted a tampon of boroglycerid to relieve as much of the congestion as possible and advised daily sitz-baths with rest for the remainder of the day. At the next visit the patient said that she was sore and tender for two days after her last treatment but after three or four applications of pelvic massage she did not experience further discomfort as a result of the treatment. I continued this method twice a week for two months and then once a week for five months. In two months the pains preceding and following the periods were relieved, as was the backache, and at the end of the sixth month the patient was entirely free from pain and was able to attend to her work on the first day of menstruation, which she had not been able to do for a period of eight years; she said, "I can now lift ordinary objects without having to double up with the pain in my side."

The leukorrheal discharge was not influenced to any marked degree by treatment, and as I could not promise a cure by curettage, she stated that she would let that continue so long as she was free from pain, and that she would stick to her douches which she had done religiously, never having omitted the use of the vaginal douche a day for eight years.

CASE 4.—Miss S., aged 21, consulted me Feb. 17, 1912. Family history was negative. The patient had never been sick, beyond the ordinary diseases of childhood and some slight attacks of fermentative dyspepsia. She stated that she began to menstruate when 11 years old, and that her menstruation was regular and without any disturbance to her health until she was 18, at which time she noticed that she had, during menstruation, pains on both sides of the pelvis and that these pains continued between the periods and increased and made her suffer more while on her feet.

She was then examined by a physician in another city, who told her that the uterus was tipped back against the rectum. She took treatments for two months, without relief, before she came to this city. She then placed herself under the care of a physician here, who tried various pessaries to hold the uterus in position, but without success. The following month she had a ventrofixation performed. After she was able to be up and around, she was again placed on tampon treatments, but while she got some relief from the backache, the pains before and during menstruation were not relieved, the discharge continued and she was sick and nauseated on the first day of menstruation. She denied having had any gonorrheal infection or miscarriages.

Examination showed a long narrow vagina and a cervix eroded over its whole area; from the patulous canal exuded a thick, tenacious yellowish discharge, which could be removed only by an alkaline solution. The uterus itself was normal and in proper position. Bimanual palpation revealed tubes of normal consistency. The left parametrium was contracted and had numerous scars running from the cervix, which was very painful and tender when stretched. The right parametrium, anteriorly, was also painful and sensitive but was not so contracted as the left. I applied pyroligneous acid to the cervix and massaged the parametrium on both sides. I continued pelvic massage twice a week for four months, after which time I gave one treatment a week for two months. I also applied tampons containing boroglycerid and ordered hot sitz-baths once a day.

At the end of six months' treatment the patient had no pains in her side, was not sick and nauseated while menstruating, and now flowed for five days instead of seven. The discharge, which was undoubtedly due to the cervicitis, stopped very quickly, and the erosions on the cervix yielded quickly to the applications of pyroligneous acid. The only inconvenience which the patient suffers now is from a slight pain for a few hours at the time of the appearance of the flow.

I have had two other cases similar to the above, about which I shall not go into the details. One patient, a married woman, complained of pain above the appendix and examination of the abdomen showed that she was very tender and sensitive to pressure around and above McBurney's point. Bimanual examination showed shortening and thickening of both uterosacral ligaments. The uterus was drawn up and lying to the right side, where the fundus could be felt, lying over the appendicular region. Bimanual massage completely relieved this condition in a few months.

The other patient, also a married woman, following the birth of her only child, had infection and a perineal tear, the right levator muscle being torn completely through. She had considerable scar tissue in the right parametrium which was improved by massage, after which I brought the levator muscles together, relieving her of all her pelvic symptoms.

I realize that the report of these half dozen cases does not form a sufficient basis from which to draw exact conclusions concerning the treatment of pelvic diseases; still, the good results obtained speak favorably for that system of pelvic massage which is the routine treatment in some of the large foreign clinics for old pelvic inflammatory conditions.

508 James Street.

HOW MAY WE REDUCE THE MORTALITY FROM CANCER OF THE UTERUS?

WITH SPECIAL REFERENCE TO TREATMENT AND TO PUBLICITY THROUGH THE LAY PRESS

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NEW YORK

We may first ask, What is cancer? At this time we know only that it is a new growth, made up of elements which, single, are normal in the human organism. In the disease termed "cancer," these elements are in abnormal sites and are grouped abnormally. The principal avenue for the dissemination of cancer elements, we have learned, is that of the lymphatic system, since those glands become affected quite early in the immediate neighborhood of the morbid growth. We are told that cancer elements may also be disseminated by the bloodstream; but of this we have no conclusive proof, and I myself have some doubt as to its correctness.

Unfortunately but little progress has been made in cancer research, despite the fact that a very large num-

ber of scientific professional men have closely applied themselves to the study of the dreaded disease. That it is of parasitic origin—caused by a microscopic germ—we have no proof whatever. Indeed, the cause of cancer is still a dark mystery. We know nothing definite concerning it; and but very little of what we do know of the disease is of practical value to those afflicted with it. In fact, the only statement of practical value that we can now make is this: When the growth is in a very early stage and accessible to the knife of the surgeon, it may, in a large number of instances, be removed permanently by this means.

Regarding cancer of the uterus, of which I wish now to speak particularly, we know that, while no period of life is exempt from it, the years between 40 and 50 are the most common for its occurrence.

Most members of the medical profession being agreed that when cancer is diagnosed in an early stage it can frequently be cured permanently, the responsibility then rests on us to make diagnoses sufficiently early, if the patients present themselves to us for examination.

SYMPTOMS

We know that cancer is most insidious in its onset. So insidious is it that many patients with cancer of the uterus have no marked symptoms at all until the disease has passed beyond the limit of operability. Yet, on the other hand, we have seen patients who were treated with local applications for "ulcerations" of the uterus until too late for a radical operation without a hint from the physician that it might be a serious condition. Then, too, there have been cases which were not even examined, the patients being told that the profuse or prolonged menstruation or the intermenstrual loss of blood was caused by "change of life." They were given internal remedies and told to take the medicine until they were better.

We know that a cancerous degeneration sometimes occurs on the surface of an erosion; but, in the very early stage, we can make a positive diagnosis only with the aid of a microscope. And, right here, I want to emphasize the importance of a competent pathologist, because occasionally the diagnosis is very difficult and only an expert can correctly interpret the findings.

There are no early symptoms peculiar to the incipient stage of cancer of the uterus. The earliest symptoms of uterine cancer are leukorrhea and atypical bleeding. The atypical bleeding may manifest itself in "spotting" after sexual intercourse—particularly in the type of cancer known as "cauliflower growth" (or epithelioma of the portio vaginalis), in prolonged menstrual flow, in irregular intermenstrual bleeding or in return of bleeding from the genitals after the menopause.

Leukorrhea is, as a rule, an earlier symptom than bleeding. This is particularly true of epithelioma. When the new growth has progressed to the stage of disintegration, we necessarily have more or less atypical bleeding, sometimes amounting to profuse hemorrhage—this cannot occur until the new growth begins to break down—and the leukorrhea becomes more profuse, putrescent and irritating. When the atypical bleeding manifests itself only in prolonged or more profuse bleeding at the menstrual period, in women in whom the disease occurs before the menopause, the abnormal loss of blood is probably caused by inflammatory changes in the endometrium.

Every woman who is "spotting," who has atypical losses of blood from the genital tract, who has profuse leukorrhea, particularly when past the fortieth year—and still more important is even the slightest loss of blood in women who have passed the menopause—should be carefully examined, because these symptoms are also early symptoms of cancer. When a physician is in doubt about the diagnosis, he should; in justice to his patient, get the opinion of a recognized specialist.

Cervical tears, accompanied by erosions, should be treated locally, and the laceration repaired, because, occasionally, such condition becomes the seat of cancer.

When a patient with cancer of the uterus is examined, the rectovaginal examination should always be used, because only with it can the parametria be properly palpated.

A cystoscopic examination should always be made in uterine cancer, although one cannot rely on the infallibility of the result of the examination, since at times it will be found that the bladder is markedly involved when the cystoscope failed to show such extent of the disease. To a certain extent, then, we must consider every abdominal operation for cancer of the cervix an exploratory operation. We know that cancer, if left to its natural course, is fatal in nearly all instances. Only occasionally there occurs a case of spontaneous cure by some means not yet clear to us. We also know that if the growth is diagnosed so early that the surgeon can remove all affected parts, a large number of patients are cured permanently by operation.

Cancer of the uterus is frequently so far advanced by the time a patient consults a physician that a radical operation with any hope for a cure of the disease is impracticable. Indeed, in many cases a palliative operation is all that can be done.

PUBLICITY

This brings up the question as to what are the most effectual means of reducing the high rate of mortality from cancer of the uterus. Next to the tuberculosis problem, this is the most important problem that has come recently before the medical profession, and particularly before those who make a specialty of diseases of women. The general answer, stated briefly, has been: Knowledge of the early symptoms of cancer of the uterus should be disseminated through the medium of the newspapers and magazines. So strongly was this emphasized on a number of occasions that, at the Clinical Congress of Surgeons of North America, held recently in this city, a committee was appointed to devise a method of securing such publicity.

Since 1905 efforts have been made through the American Medical Association to reduce the mortality from cancer of the uterus, and in THE JOURNAL will be found a short summary[1] of the chief points in connection with the disease, as reported by the committee.

The report of the committee at the Boston meeting[2] is ideal. If publications are to appear in the lay press, the method recommended by the committee is the only one that is strictly ethical. The printing of articles with the name of the medical writer attached is, in my opinion, reprehensible. All articles, from A to Z, should, as suggested in the report, bear the stamp of approval of the American Medical Association.

While it is evident from the excellent report of the Board of Public Instruction on Medical Subjects[3] presented to the members of the House of Delegates of the American Medical Association that difficulties were encountered in connection with the general publicity

1. THE JOURNAL A. M. A., July 22, 1905, p. 283.
2. THE JOURNAL A. M. A., June 16, 1906, p. 1878.
3. THE JOURNAL A. M. A., June 19, 1909, p. 2057.

question, nevertheless, I believe that, to a degree, conditions have changed, and that the obstacles there mentioned could readily be overcome, simply by placing matters in the hands of men possessing influence with the lay press. Thus the publications, if decided on, could be made in harmony with the high standard required by the majority of the medical profession.

To repeat: Nothing should appear in the lay press save that which meets the approval of the American Medical Association. A few months' delay is of no great significance.

In this publicity undertaking we are following in the footsteps of Germany, where the dissemination of knowledge by similar means was begun by Dührssen of Berlin, many years ago, and, later, on a more extensive scale, by Winter of Königsberg. Without discussing the merits of the proposed plan, which on the surface appears admirable, I come at once to the practical side and ask what has been the result in Germany of publicity disseminated in this way?

During the past summer I had an opportunity to converse with a number of men who are connected with university hospitals there and who studied carefully the question of publicity. Those to whom I put my questions assured me that they did not find any advantageous result. They had seen no larger percentage of operable cases, since the "Winter" circular letters had been sent out, and since the lay press had published articles written by Winter on the subject of uterine cancer. What they had observed, following the general publicity in the lay press, was that "a goodly number of neurasthenic women were made more nervous and consulted physicians in fear of cancer."

It is my opinion, strengthened by this information obtained abroad, that we are not likely to get under observation a larger percentage of incipient cases of cancer of the uterus by giving the cancer symptoms to the public through the medium of the lay press. On the contrary, it is more than likely that of the large number of women suffering from leukorrhea, those of the neurasthenic type will simply acquire an aggravation of their nervousness, with this result: They will rush to physicians for examination, and, if told they have no malignant disease, will be distrustful, and seek the advice of others. I am convinced, therefore, that the better way—the only rational way, indeed—is to impress on the profession the grave importance of being conscientious in the matter of examination, and never superficial.

Let the teaching on this particular subject to the laity come from the family doctor and not through newspapers and magazines. We know that since the public has been educated to the danger of cancer of the female breast, women, as a rule, do not hesitate to submit to an operation for such afflictions. How has the public been instructed in this case? Certainly not by the lay press, but by physicians in direct intercourse with their patients. And as a result of this teaching, the word has gone from woman to woman: "If you have a lump in your breast, lose no time in consulting a doctor"!

Formerly I too regarded such publicity as is now advocated the best means of securing a larger percentage of operability. But, since learning the experience of confrères abroad, I have become convinced that a far better way is the one I have not infrequently advocated heretofore, when speaking or writing on this subject. To bring about a lower mortality from cancer of the uterus it is only necessary that members of the medical profession should use in practice what they so well know in theory concerning the occurrence of first symptoms in this dread disease.

From my own point of view more practical benefit would be gained by impressing on physicians the grave risk of treating with internal or local medication, before having made sure that no malignant condition was present, a patient who has even the slightest suspicious symptom. The family physician, in his confidential relation, is the one to teach women the danger of neglecting to consult if even the slightest suspicious symptom be present. That the training of the profession, particularly of the younger members, in this direction, is already beginning to bear fruit is shown by the increase in the number of women seeking consultation for the purpose of diagnosis as to the presence or absence of cancer.

It is of far greater importance that, in all instances in which there is the slightest suspicion, the general practitioner shall *make absolutely sure that cancer is not present,* rather than that he shall definitely diagnose its presence. Only through such conscientious method will gynecologic surgeons be enabled to get tangible results from their efforts to guide their professional brethren in this direction. Nor until the medical profession becomes resolved that in cases that present even the slightest subjective or objective symptom of cancer, it is the moral duty of the physician to use every available method to negate a cancer diagnosis, before he allows the patient to pass from under his observation, shall we be able to reduce the mortality from uterine cancer. If, however, we can bring about such scrupulous practice as this, I am confident that the percentage of radical cures by operation will increase 50 per cent.

Of every curetting the scrapings should be examined. From every cervix that appears suspicious of cancer enough should be excised for a microscopic examination.

When the diagnosis of cancer has not been positively excluded such patient should be constantly under the observation of her physician.

TREATMENT

A diagnosis of cancer of the uterus having been made, what is the best method of treatment?

Without hesitation I favor the extended abdominal operation for the greater number of patients. The exceptions to this general rule are patients who are very obese; cases of cancer of the body of the uterus, when the uterus is freely movable, and cases of incipient epithelioma of the vaginal part of the cervix. (In somewhat advanced cases of cancer of the cervix, it is impossible to determine, with certainty, from what part the disease originated.) But in connection with the latter class of patients the personal point of view enters very largely into the determination of the incipient stage, operable cases, the border-line cases and the inoperable cases.

Recently I saw the extended abdominal operation done on a patient from whom a small area from an eroded portio vaginalis had been excised, and the pathologist's diagnosis was cancer. From what I saw, I would have called that an instance of the incipient stage of cancer and subjected the woman to a vaginal hysterectomy. Patients in whom the disease had passed what I would designate as the incipient stage should be operated on by the abdominal route; and the operation should be done extensively; the parametria and enlarged glands should be removed also. The ordinary panhysterectomy—the original Freund method of extirpating a cancerous uterus—is inadequate. The old technic of vaginal

hysterectomy is on a par with the operation known as "Freund's operation" so far as remote results are concerned, and it is superior in primary results.

In women who are so obese that it is obvious that an abdominal operation will be technically undesirable, the vaginal operation devised by Schauta, in connection with the paravaginal section described by Schuchardt, should be the method of choice. By the latter method, although the glands cannot be extirpated, yet the parametria may be removed, and quite extensively, though not so extensively as by the abdominal route.

Border-line cases are those in which the disease has advanced so far that while one may find it possible to extirpate the cancerous uterus, it is very doubtful—indeed, improbable—that all malignant structures can be removed. Though some operators unhesitatingly operate radically on such patients, I do not favor the extended abdominal operation under these circumstances, since the primary mortality necessarily is very great, and the remote results are comparatively still more unfavorable. I believe that in cases of this character a palliative operation with an actual cautery is better for the patient, just as in instances at once diagnosed as inoperable by radical means.

In consideration of treatment, *x*-ray therapy is clearly entitled to a place. That numerous patients with cancer in other locations have been benefited by such treatment and that some have been cured is unquestionable, and particularly is this true of epithelioma of the skin.

Thus far, although I have had a number of women subjected to the treatment, I have not seen an instance of marked benefit from the *x*-ray in uterine cancer; but Bumm[4] reports a very interesting observation:

A woman 46 years old had atypical bleeding and pain in the left side since February, 1912, for the relief of which she came to the clinic in May. The woman was obese and anemic; the cervix was tumid and fixed; the finger came into a rimose cavity with broken-down masses, which, on the left side, was in continuity with the vagina and the parametrium. On examination per rectum it became evident that from the cancerous mass a voluminous infiltration proceeded, going from the left, posteriorly, to the pelvic wall and immobilizing the cervix. Because of the diffuse character of the infiltration a removal of the cancer did not seem possible, and the case was assigned to Roentgen treatment because of inoperability.

During the months of June and July the patient was treated at intervals of from one to two days, according to the method described by Haendly at the June meeting of the Berlin Gynecologic Society. In September the treatment was resumed. When, about the middle of October, I reexamined the patient, who had up to that time been receiving 800 Holzknecht units = 1,600 Kienboeck, I was surprised at the improvement in the general and local condition. The patient asserted that the bleeding had ceased entirely; that the discharge, which had lost its putrescent odor, had diminished, and that the pain had quite gone. Instead of the former large crater there was now only a narrow cavity, in which the penetrating finger found no granulating masses. The cervix was hard and callous; the former diffuse infiltration toward the left side was transformed into a hard tumor, which could be well distinguished from the pelvic wall; and it and the cervix were mobile. Under these circumstances operation seemed possible. It was advised; and on October 22 it was done.

At the vaginal preparatory treatment but little tissue could be scraped away with the sharp spoon, as it came into contact everywhere with hard, creaking tissue.

When the abdomen was opened the pelvic peritoneum was found whitish and callous; the adnexa were agglutinated into one mass with the corpus uteri and could be liberated only with scissors.

The hardening and callousness increased on going downward toward the tissues that were the more exposed to the rays. It was necessary to liberate the left ureter with scissors from out of a whitish glistening callosity. The enucleation of the cancerous nodule in the left parametrium left a large cavity, which extended down to the levators; but, because of the marked circumscription of the nodule, the enucleation was accomplished with ease. On both sides enlarged, hard glands were removed from the trunks of the vessels. Smooth convalescence.

From a clinical point of view the case described shows that by vaginal raying large doses may be administered without causing burns of the mucous membrane; and that under the influence of intense raying a hardening of the tissues of the vaginal vault, the cervix and the pelvic connective tissue occurred, which not only hindered further dissemination of the cancer but also after expulsion of the cancerous masses, effected a purification of the cancerous crater and a cessation of ichor and hemorrhage. As the result of the tissue sclerosis the diffuse infiltration of the parametrium became sharply circumscribed from the surrounding structure, and the formerly inoperable cancer became operable.

While the sclerotic changes and retrogression of the cancer-dissemination could also be clearly seen and palpated in the sectioned specimen, the microscopic examination disappointed us somewhat. The lining of the cervical wound-cavity showed everywhere a thin, not visibly changed, layer of proliferating cancerous tissue, which was surrounded first by a thin layer of strongly celled infiltrated tissue and then by a voluminous layer of sclerosed connective tissue, which almost entirely superseded the muscle lamellae. In the parametrium too—in, and even outside of the callus cancer—nests were found; the sclerotic glands were free.

A detailed description of Bumm's case is given because of the importance of the findings in connection with the *x*-ray treatment.

Frequently reports have been published with the statement that inoperable cancer is made operable by this means. But why, I ask, are these patients operated on when improvement is evident? Even taking Bumm's case as an example, might it not be that a continuance of the treatment would have resulted in a complete cure?

We need much more work and observation of this character. I earnestly urge that, when in this class of patients a formerly inoperable cancer becomes operable, the treatment be continued and the results noted. Unfortunately, among my own inoperable cases, I have not seen any so improve under Roentgen therapy as to become operable.

SUMMARY AND CONCLUSION

We know nothing definite as to the cause of cancer.

There are no symptoms which, alone, are characteristic of cancer of the uterus.

The onset of the disease is so insidious that sometimes the neoplasm has progressed to a stage beyond the hope of cure by any kind of operation, before the appearance of a symptom sufficiently marked to cause the patient to seek advice.

The promulgation of knowledge regarding cancer of the uterus through the lay press, as advised at the last meeting of a large national gathering, cannot bring about a lowering of mortality from uterine cancer to such extent as would be the case if the medical profession—the family physician—did the teaching directly.

Information regarding cancer of the uterus in its early stages, through the lay press, is likely to do more harm than good, because there are no characteristic symptoms that apply to that disease alone, and because the principal early symptom, leukorrhea, is one that is

4. Bumm: Zentralbl. f. Gynäk., Nov. 23, 1912.

present so often in women in whom there is not the slightest suspicion of uterine cancer that such lay articles are likely to aggravate the nervous symptoms already existing in many, and make neurasthenics of some who are not ill.

The family physician must be urged to realize that, in all instances in which there is the slightest suspicion of cancer, his obligation to his patient is to ascertain, by all diagnostic means at his command, that cancer is *not* present, rather than to affirm a cancer diagnosis.

When the diagnosis of cancer has been made, an operation for the relief, or the cure—as the case may be—should be undertaken as soon as possible, since, with our present knowledge, surgery offers the best prospect for the patient.

39 East Sixty-First Street.

REPORT OF A CASE OF PNEUMOCOCCUS MENINGITIS WITH NORMAL CEREBROSPINAL FLUID

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The diagnosis of meningitis in recent times, thanks to lumbar puncture, has been greatly facilitated. That the cerebrospinal fluid is the mirror of the exudative and transudative phenomena occurring in the vascular apparatus of the pia and arachnoid is generally believed. The positive diagnosis of any form of cerebrospinal meningitis is never justified unless the specific microorganism is found in the cerebrospinal fluid.

The dictum of Dunn[1] of Boston that "without lumbar puncture a diagnosis of cerebrospinal meningitis is absolutely without value for scientific, statistical or therapeutic purposes" deserves repetition. It is believed almost generally that negative findings also, if extending over the late stages of the disease, will uniformly enable the absolute exclusion of meningitis. It must now be admitted that positive findings alone in this regard are conclusive, and that an encephalitis and meningitis may be present with a normal fluid. This does not apply to the tuberculous variety, as we now know that, in the later stages, tubercle bacilli are invariably to be found in the cerebrospinal fluid, though at times with difficulty.

Recently Oseki[2] encountered cases of pneumonia in which at necropsy microscopic examination showed a meningo-encephalitis of which there had been no symptoms whatever during life. A similar condition was found in other infectious processes, including typhoid fever. In a series of ten cases of pneumonia this condition was found in four. This means, undoubtedly, that in the past many of our pneumonia patients, whose nervous symptoms have usually been interpreted as meningismus, were really suffering from lymphocytic and leukocytic infiltration of the brain and meninges.

REPORT OF CASE

Baby P., male, aged 1 year, an inmate St. Ann's Infant Asylum, suffered from an attack of measles when 2 months old. May 14, 1911, four weeks previous to the present illness the patient contracted influenza accompanied by a wide-spread maculopapular eruption. Koplik spots were absent. He did not seem to recover entirely from this attack. His nutrition had always been below normal; weight was 14 pounds. He presented the usual signs of rickets. On the 14th day of April I was asked to see him. The nurse stated that she had noticed him failing the previous four days; he would not take his bottle as usual and had been having fever. The onset had been gradual following closely on the attack of influenza.

Physical Examination.—The infant was suffering from malnutrition and rickets the latter evidenced by craniotabes, rosary, and enlargement of the epiphyses at the wrist and scoliosis. There was marked prostration and pallor; pulse 150, respiration 50, slight expiratory grunt, excursion of the alae nasi, temperature 103.5. Baby took but little nourishment; no exanthem or enanthem. Chest and Abdomen: The right chest posteriorly gave marked dulness extending from the spine of the scapula to the liver. This dull area presented marked resistance to the examining finger and extended around the chest to the midaxillary line; Skoda's resonance was not elicited beneath the clavicle. The left chest posteriorly gave normal resonance; no paravertebral triangle of dulness. Anteriorly over right and left chest normal resonance. On auscultation over dull area bronchial breathing heard. Over left chest normal breath sounds except that they were somewhat intensified. Cardiac impulse not palpable, apex-beat located with stethoscope in fourth interspace in mamillary line. Heart sounds clear and distinct, second pulmonic sound slightly accentuated. Liver above at sixth rib, below not palpable. Spleen palpable two finger-breadths below free costal borders. Abdomen neither distended nor unusually flattened. Diarrhea not present. A puncture made over the dull area of right chest withdrew 8 c.c. of clear serous fluid.

Examination of Nervous System.—Baby in a stupor; pupils equal, moderately dilated, reacting to light; no spasticity of the legs, some resistance of the right thigh to passive flexion and extension; knee-jerks increased, no ankle-clonus; Kernig's sign absent, Babinski's sign present; contralateral leg reflex, identical and reciprocal, absent; Brudzinski's neck sign present, rigidity of the neck, no opisthotonos. Marked tendency to opisthotonos if infant was placed in prone position. Fontanelle open about the size of a dime, level with the skull. No paralysis of the extremities; no ptosis, nystagmus, lagophthalmus or facial paralysis. Lumbar-puncture withdrew 4 c.c. of a clear serous fluid drop by drop under less than normal pressure. The bacteriologist, Dr. John W. Marchildon, reported no microorganisms in the fluid and no increase of the cell content. The next morning the general condition of baby was much worse. Prostration more marked, respiration 42, pulse 120, temperature 99.8. Neck sign still present. Death occurred that evening.

Diagnosis.—Bronchopneumonia with exudative pleurisy. Owing to the character of the fluid removed by lumbar puncture, and the frequency of the symptom-complex (meningismus) in infectious processes, the diagnosis of meningitis was not made. The most important single symptom which spoke for this was Brudzinski's neck sign. Absence of a bulging fontanelle spoke against this diagnosis.

Necropsy.—Brain: There did not seem to be a marked increase of the cerebrospinal fluid; the ventricles were not at all distended. Meninges: Convexity and parietal surface of frontal lobe extending back to the parietal lobe was covered by a thick fibrinopurulent exudate. The base was not involved. The exudate showed an organism corresponding in all respects to the pneumococcus. Lungs: Left lung normal, right lung, posterior and lateral surface of middle and inferior lobe consolidated. The pleura covering this consolidated area was occupied by a very thick fibrinopurulent exudate the exact counterpart of the membrane covering the brain. The chest contained 15 c.c. of clear serous fluid. Nothing special in the other organs. Anatomic diagnosis: Bronchopneumonia, fibrinopurulent pleurisy, pneumococcus meningitis of convexity.

Holt[3] has reported a case of pneumococcus meningitis with anatomic findings (meninges) identical with this

1. Dunn: Cerebrospinal Meningitis, Its Etiology, Prognosis and Treatment, Am. Jour. Dis. Child., February, 1911, p. 95.
2. Oseki: Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), 1912, lv, 538
3. Holt: Observations on Three Hundred Cases of Acute Meningitis in Infants and Young Children, Am. Jour. Dis. Child., January, 1911, p. 26.

one in which the cerebrospinal fluid was sterile throughout the course of the disease. He remarks (January, 1911): "We are accustomed to place so much reliance on lumbar puncture that the possibility of the existence of acute meningitis with a normal fluid is rather difficult to grasp."

In casting about for an explanation of the failure of the cerebrospinal fluid to show the characteristic changes, it would not be necessary to assume a shutting off of the spinal canal. The thick and tenacious character of the pseudomembrane covering the brain with almost no liquefaction of this exudate is sufficient to explain the reason for the failure of the cerebrospinal fluid to reveal the actual condition.

From what has been said above, the following conclusions seem justified:

1. The positive diagnosis of pneumococcus meningitis may be impossible during life.

2. A normal cerebrospinal fluid may be obtained throughout the disease.

3. Anatomic changes (encephalitis, meningitis) occur oftener than usually believed and are the explanation of symptoms from the side of the nervous system which we have regarded in the past as functional (meningismus).

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THE GRAFTING OF PRESERVED AMNIOTIC MEMBRANE TO BURNED AND ULCERATED SURFACES, SUBSTITUTING SKIN GRAFTS

A PRELIMINARY REPORT

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The use of this tissue for grafting to denuded areas finds its justification in that it is essentially an embryonic offshoot of the skin and is histologically built up of dermal elements.

It is more logical for this purpose than tissues of other animals, being "human" and, as just stated, of skin derivation and hence homologous. It also seems better than freshly cut skin-grafts, eliminating the use of the razor and anesthetic as well as the entailed secondary wound with its numerous inconveniences. Besides these advantages, should this method be found as useful to others as I have found it, there is a negative advantage of inestimable value in that there is no harm done should there be no "take."

Dr. Nicholas Sabella, who cooperated with me in my early efforts to perfect this plan of treatment has been using the amniotic covering of the umbilical cord and that portion of the amnion immediately adjacent to its fetal attachment where it is found to present "amniotic caruncles" which comprise islands of stratified epithelia closely resembling true skin. His results have also been gratifying in the extreme.

The histology, in brief, is that of a smooth, glistening membrane made up of two layers loosely connected and freely movable between the thumb and index-finger. The outer layer, of chorionic origin, is mucofibrous, and the inner, of true amniotic origin, is made up of a single layer of cuboidal epithelia. It is this side of the sac with which we are most concerned, as it is the one which will adhere to the denuded surface, being simply an extension of embryonic skin.

The technic of preserving and fixing the grafts was suggested to me by Dr. Alexis Carrel, who also described his method in a recent paper.[1] In this paper he deals with the preservation in latent life of various tissues, including skin-grafts removed from an infant which had died during labor, and describes his experiments with various mediums such as isotonic sodium chlorid solution, Locke's and Ringer's solutions, defibrinated blood, serum, confined human air and petrolatum. The last and Ringer's solution were chiefly employed, and in these mediums the tissues were placed immediately after their removal from the organism and maintained at a temperature between —1 and + 7 C. (between 30.2 and 44.6 F.). The color and consistency remained normal for several weeks and even after from seven to ten months the microscopic appearance of the arteries was not markedly modified.

In my experiments I have adhered to the above technic but have employed petrolatum and also liquid petrolatum for jars from which parts of an entire amniotic sac were being cut from day to day for cases as they presented, thus avoiding the necessity of reheating the jars after each session, which would have been necessary were I using the thicker medium. Individual tubes of petrolatum containing small specimens are, however, better for stock purposes keeping much longer, as they are exposed to the air for the first time—except before their immersion—just when needed.

Another important aid from the same source was the recommendation of a wax dressing—mixture of paraffin, beeswax and castor oil—to hold the graft in close apposition to the granulatory surface and cause it to conform accurately to the minute inequalities thereof.

The freshly obtained amniotic sac is washed of all blood in a normal saline solution, dried between layers of sterile gauze and immediately immersed in petrolatum which has been raised to the melting point over a water-bath. Liquid petrolatum will serve well when a specimen is to be cut many times and used up within a few weeks. The receptacles are stored on or near ice as soon as possible.

When the denuded surface has been thoroughly cleansed of all secretion and bits of tissue, a section of the graft is spread smoothly, care being taken to press out all air-bubbles. Care should also be exercised that the amniotic or glistening side be placed in apposition to the wound.

The wax, having been warmed to just the degree necessary to liquefy, is now applied with wooden applicators wound with cotton so that a whisk of nearly an inch in length may be saturated and then drawn across the graft without disturbing its position. A fresh applicator is used for each dip to prevent contaminating what remains, and also because the wax hardens immediately on exposure, and the cotton would soon become covered with hard wax and no longer be a soft brush. An outer dressing of cotton and bandage is all that is necessary for protection and absorption.

After two days when the dressing is removed it is found that what seems to be the entire graft is adherent to the wax. This, however, is not what happens. On microscopic examination of this adherent tissue it is found that only the outer or chorionic layer has come away. The two layers have separated and the inner or

1. Carrel, Alexis: The Preservation of Tissues and Its Applications in Surgery, THE JOURNAL A. M. A., Aug. 17, 1912, p. 523.

true amniotic cellular tissue has been taken up by the raw surface.

Thus far the conditions treated have not held closely to any one group but have included varicose ulcers, burns, scalds and denudations of traumatic origin.

Ulcers.—These were generally varicose ulcers of the leg of all stages of infection and depth of erosion, and in nearly every instance it was necessary to "clean up" before grafting could be thought of. Iodin or strong solutions of potassium permanganate followed with a wet dressing of mercuric chlorid solution 1:2,000 left on two days generally sufficed to subdue the odor and encourage a more healthy appearing surface. After this procedure it is often found useful to stimulate by rubbing briskly with dry gauze, thus removing all sluggish granulations and detritus. The application of the graft and wax with a thick and smoothly applied outer dressing was usually done as described, but occasionally the wax covering was extended over the entire leg below the knee for the better maintenance of the circulation. While the results were much better than anything seen in our experience with other methods, there was not the diffuse even take over the ulcerated surface which occurred in other cases. There were numerous spots or islands of skin and edges which were healthy and grew in rapidly.

Burns and Scalds.—When all bits of dead skin and all foreign matter had been carefully removed and the tissue applied and left on two days, there was almost without exception an even and diffuse adaptation of the graft. In this group, however, there were only eleven cases; these included all degrees, but none more extensive in area than 9 square inches, approximately, and none situated on the face.

Traumatic Denudation.—One case was treated with so satisfactory a result as to justify a more complete description. In this instance the left hand of a laundry worker was caught in a machine and then quickly pulled out, denuding the palmar aspect of the ring and middle fingers throughout the length of the two terminal phalanges. The raw surfaces were grafted but once and after two days were found diffusely and entirely covered with healthy skin so that no further treatment was necessary other than a dry protective dressing, the skin being yet delicate. This case demonstrates the action of this mode of treatment at its best advantage, there being no unhealthy condition of the underlying tissue. In spite of the fact that there is but one case in this group I am encouraged to believe that the result could not have been obtained in any other way, and that the graft took immediately.

In conclusion it is proper to acknowledge that the experiments have been limited to such cases as herein described and that electric, *x*-ray or extensive burns of any sort have not been tried.

Should the amniotic graft do as well or nearly as well as true skin, it must commend itself for general use, obviating, as it seems, the necessity of an anesthesia and the production of a secondary wound with no certainty of the outcome for its justification.

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Newspaper Medicine.—The recording by the lay press of a heroic deed or wonderful act on the part of a physician or surgeon is highly desirable, for it increases the respect in which the profession should be held; but there is no excuse for assisting a writer to project a half-baked truth or an incomplete discovery on the necessarily ignorant public.—B. Joseph in *Vermont Med. Monthly.*

MEDICAL EDUCATION AND THE HOSPITAL*

ARTHUR DEAN BEVAN, M.D.
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Mr. President and Members of the Æsculapian Club: I am delighted to have the opportunity of meeting you and honored by the invitation to address you on the subject of medical education and the part the hospital takes or should take in the making of the modern physician. I accept the fact that this invitation is not extended to me as a personal honor, but because for ten years as chairman of the Council on Medical Education of the American Medical Association, I have been on the firing-line in the battle to elevate the standard of medical education in this country; and I take it that you desire to hear the story that these swiftly moving years have written; to hear what has been accomplished, what the existing conditions are, and what still remains to be done in order to place medical education in America on an acceptable basis; and especially what part the hospital will play in this development.

I shall not deal with statistics or with the rehearsal of ancient history, but I shall attempt to draw a rough sketch of medical education as it was when many of us began to study medicine, in order that we may compare it with the opportunities offered and the courses required in our better schools to-day. In the early eighties, a medical student could graduate after attending two courses of lectures of from twenty-six to thirty weeks each. In many schools an additional year's preparatory reading with a preceptor was required, making three years in all, but as a matter of fact the year with the preceptor too often meant little or nothing in the way of medical education. Once in a while, however, this preceptor year under some old Hippocrates of a general practitioner was the best of all and molded and directed the student's medical career. These courses of lectures were repeated year after year, the second year of the course being a repetition of the first. They were given, in the better schools at least, by masters of their subjects, men who knew the medicine of their time and who knew how to impart this knowledge as well as it could be imparted by lectures. Little was done in the way of laboratory work or in the dispensary or hospital. Read the clinical lectures of Trousseau, the lectures of Paget, the surgical pathology of Billroth; and those of you who did not live through this period can form some idea of the character of the medical teaching done in America by their contemporaries, by such men as Samuel D. Gross, Austin Flint, Marion Sims, Henry Bigelow, N. S. Davis, Moses Gunn and a host of others. It has become rather the fashion to belittle the early American medical schools and the medical teachers who taught in them. Surely this is not warranted by the facts. Medicine was not as yet a science. These old masters taught well what was then known. They struggled under a heavy load; many things which seem clear to the first-year medical student to-day were dark, unsolved problems to them. Do not criticize these men; they were great men. Do not criticize their medical schools and their methods of teaching; they were in keeping with the knowledge of their day.

The truth is that in thirty years a revolution has occurred; a new and great science, the science of medicine, has been born; and the change has been so rapid and so great that even those of us who are not old can

* Address before the Æsculapian Club of Harvard University at Boston, Dec. 7, 1912.

reach back and touch the dark days when medicine was not a science. To us the disciples of Æsculapius, there has come with this wonderful change a great opportunity and a great responsibility—to develop a scheme of medical education which will keep pace with the rapidly advancing science of medicine.

In the old days when the two- and three-year medical courses consisted almost altogether of didactic lectures, seven to ten men with a lecture room or two could conduct a medical school at little expense and as a profitable business. As a result in this growing country medical schools sprang up wherever the rapidly increasing population offered opportunity. The number of schools organized must have been four or five hundred in all during the course of our history. When the American Medical Association first seriously grappled with the problem of medical education through THE JOURNAL of the Association the number of medical schools was 166, about as many as in all the rest of the world. As medicine assumed the dignity of a science it became necessary to put the medical school on a university basis. Since the appointment of the Council on Education a continuous effort has been made by the American Medical Association, largely through publicity in its JOURNAL, to better the situation, and with the assistance of the state licensing boards, the association of American Medical Colleges, the Carnegie Foundation and some of the universities, great improvements have been made. The number of medical schools has been cut down from 166 to about 110 and it seems probable that this number will be shortly reduced to 90 or less as the majority of the state licensing boards have this year refused to recognize thirty or more of the poorer schools. It also seems probable that this number will eventually be reduced to about 60 or 70 schools, which will then all be on a sound university basis.

In addition to the reduction in the number of schools other very great advances have been made. Between fifty and sixty schools now require the students to take one or two years of premedical work in physics, chemistry and biology in addition to a four-year high-school course before beginning the study of medicine. The course has been lengthened to four years in all American medical schools and a large proportion of the graduates from our better schools now serve a year or more as hospital interns before beginning the practice of medicine. Except in a few states, graduation from a recognized medical school requiring four years of study is demanded before the applicant can take the examination for license to practice medicine. Strange at it may seem, Massachusetts and Tennessee are about all the territory still left open to the non-graduate. Within a few years, therefore, we shall have in America about sixty or seventy medical schools. The medical student, after leaving high school, will be required to spend one or two years in the study of physics, chemistry and biology in the university, two years in the laboratory, two years in the clinical branches of medicine, and two years as intern—in all six or seven years in preparation for the practice of medicine.

Before leaving the subject of preliminary education I want to criticize one requirement which has been adopted at Harvard, namely, that of a bachelor's degree for admission to the medical school. There is no fair reason why the anomalous American college course should be sandwiched in between the secondary school and the medical department of the university. Life is too short to compel the waste of two or more years in this way. If a bachelor's degree is required and a hospital internship added, the average age of the class at graduation will be 28 or 29 years—too late an age for a man to begin to try to make a living. In Germany the student begins the study of medicine when he is between 19 and 20 years old; he takes a six-year course, which includes one year in physics, chemistry and biology and one year as an intern in a hospital; he thus secures his license to practice by the time he is 25 or 26 years of age. Twenty-five is a much better age at which to begin the practice of medicine than 28 or 29. I should much prefer to have an intern come on my service in the hospital at 25 than at 29. This is a very serious question and I feel sure from the comparative studies that I have made that it is a mistake to make a bachelor degree requirement. A much better plan is to make one or two years of university science the maximum requirement and even then this should not be generally adopted unless it can be associated with such a saving of time in the secondary school that the average medical student can complete his course by the time he is 25 or 26. I would suggest the adoption at Harvard of the six-year combined course; that is the two-year university science requirement for admission and the intern year as an integral part of your course. Another reason for adopting this plan, and a very strong one, is this: the Harvard medical school should sustain the same relation to New England that the medical department of Berlin does to Prussia or that the medical department of Munich does to Bavaria. It should train the medical men of New England. In order to do this it must be a large medical school and graduate a large number of men. (The Munich school has 2,000 and Berlin 1,800 medical students.) Harvard can never do this with a bachelor requirement which means completion of the medical course at 28. It can do this, however, on the Berlin and Munich basis.

The development of the science of medicine came with the birth of modern pathology and bacteriology and with rapid advances in anatomy, especially in histology and embryology, and in physiology and in the effort, just begun, to make a modern scientific pharmacology. These so-called laboratory branches of medicine have made great strides in the last thirty years. The development of these sciences has made the science of medicine possible. Acknowledging fully the great debt medicine owes to these laboratory branches and without seeking to belittle them in any way, I desire to claim the highest place for clinical medicine itself, the science which utilizes the sciences of anatomy, physiology, pathology, bacteriology, pharmacology, chemistry, physics—in fact, all knowledge—in the effort to seek the cause of disease, to prevent disease, to cure disease, and to relieve the individual of suffering and deformity. I have sometimes heard my laboratory friends say that the only purely scientific side of medicine is the laboratory side, the research side, and once one of them said to me: "What have the clinicians done to compare with the cure of diphtheria by antitoxin?"

What have the clinicians done? Take but a hurried glance at medical history and you will find that the clinicians discovered vaccination, introduced anesthesia, and discovered antiseptic and aseptic surgery; a clinician, Ogston, even discovered the pus microbe; the clinicians have saved thousands of lives by a clinical study of the cause and cure of appendicitis, a work in which your own Reginald Fitz took a leading part. More lives are saved by modern surgery each year in appendix lesions alone than are saved by all the specifics so far discovered by the laboratory workers, including those for diphtheria, cerebrospinal meningitis, and hydrophobia. Think of the thousands of lives that have been saved by the clinician

through modern aseptic surgery each year! As a clinical triumph which compares favorably with the introduction of antitoxin in diphtheria take the saving of 90 per cent. of our cases of general peritonitis early operated on as compared with the former mortality of over 90 per cent.; consider the splendid piece of clinical research work of Kocher in the surgery of the thyroid gland for which he received the Nobel prize; the modern kidney work controlled by the *x*-ray and other scientific means of diagnosis; the modern bone work made possible by the *x*-ray and aseptic surgery; and the stomach work, gall-bladder work, prostate work, etc.; and in the specialties think of the magnificent work that has been done in neurology, pediatrics, eye, ear, nose and throat, dermatology, orthopedics, in fact in every department of clinical medicine.

I do not wish to make any unkind comparisons or to detract in any way from the splendid achievements of our laboratory colleagues. I do want, however, at the beginning of this discussion to insist that the patient, the living, human being with his diseases, is the unit about which the science of medicine is built; that the study of this living, human being is just as scientific as the study of a rabbit or a guinea-pig or a test-tube full of pathogenic germs; that the hospital and dispensary can and should be as scientifically conducted as the teaching laboratory; that clinical research is as scientific as laboratory research; that the highest type, the ultimate object of all medical research is clinical research in which the effort is made to discover the cause and cure of disease. I must insist also that the scheme of medical education must be directed by the medical man, the clinician, assisted by, but not controlled by, his colleagues in anatomy, physiology, pathology and pharmacology.

In the development of a scheme for teaching modern scientific medicine we must as the first essential have the patient and a place to study him in; that means that the medical school must be located in a large center of population and must be built in and around the dispensary and hospital. We must have the necessary facilities to employ the modern refined means of diagnosis; this means clinical laboratories. We must have facilities to study disease in culture and in animals; this means research laboratories. These clinical and research laboratories must be in connection with and a part of our dispensaries and hospitals. In order to prepare our students for the study of clinical medicine, laboratories of anatomy, physiology, pathology and pharmacology must be provided, so far as possible in close contact with the hospital and dispensary. We must have trained clinical and laboratory teachers. One of the great needs in this country is a system such as has been developed in Germany for the training of teachers and research men. German medicine has been made preeminent by the young men from 25 to 35 years of age working as assistants, devoting five, ten or even fifteen of the best years of their lives to one department of medicine, mastering it, developing it, making themselves trained teachers and research men, capable of stepping into the shoes of their chief, or of filling a chair in some other university. We must adopt the same plan in this country.

To my mind the two great problems which now confront us here in America in medical education are: first, the need of a scheme for the development of trained teachers in medicine; and second, the need of the right sort of affiliation between our great hospitals and university medical departments, and the education of hospital trustees to the importance of the educational research functions of the hospital.

The first need as I have already stated I think can best be met by adopting the German plan of having assistants serving many years in one department. This should be applied in both laboratory and clinical departments. It is very desirable that the teacher of anatomy or physiology, pathology, etc., in a medical school should be a man with a complete medical training, including a hospital internship. It is essential for him to have the medical point of view. It is a mistake to put a man direct from the laboratory sciences, no matter how brilliant, into a clinical chair. Laboratory training is most desirable but these men in addition to their laboratory training should serve their five or ten years of apprenticeship as assistants in clinical work.

In solving our second problem, we may again turn to Germany for aid. In this country the medical school has been developed independently of the hospital. In England the medical schools were developed in the hospital, the attending medical men forming themselves into a faculty to teach medicine. In Germany I think we find the right relationship. In no German city is there more than one university and therefore no German city has more than one medical school, as all the German medical schools are medical departments of the twenty German universities. It has not been difficult therefore in Germany to make a close affiliation between the great municipal hospitals and the medical departments of the universities. This is the condition which we should strive to bring about in this country.

This cooperation of the municipal hospital and the general hospital supported by private endowment with the medical department of the university must be brought about in America, and how this is to be done is one of the most vital problems presented at the present time to our great charity hospitals and our universities. The welding of the great charity hospital and the medical department of the university is one of those affiliations which is of great mutual benefit. That such cooperation is of service to both institutions and to the community at large is well shown by a study of the great clinics in the German universities where such combinations exist. We must bring about such a condition of affairs in our great American cities. Wherever I have discussed this matter I have been met by two classes of arguments: one, that on account of our political situation it will never be possible to take our great municipal hospitals out of political control; and another (presented by a group of men, especially laboratory men who know little about clinical medicine and hospital conditions) that the ideal solution would be for each university medical department to have its own university hospital and provide its medical students with patients just as it provides them with test-tubes and guinea-pigs in the laboratory. What is clearly the answer?

This question must be looked at from the broad point of view of the community as a whole; from that point of view it is an economic wrong for the university to conduct a hospital for the sole purpose of teaching and research, and a sociologic crime for the municipality to conduct a hospital as a boarding-house for the care of the sick without any regard for the educational and research functions of the hospital. In the interest of the community, therefore, this union of forces is demanded. The hospital should provide for the care of the sick and the university should provide for the teaching and research function of the great hospital. The two bodies, the administrative and the medical, each have their separate functions to perform. They need not and must not conflict. And it is only by working together in the same

institution that the best results can be obtained. This solution is the only correct one. It must come about because it is the right solution. We must bring about as soon as possible these affiliations between our universities and the great hospitals which are so fortunately situated that they can secure the advantages of such university connection.

The medical school must enter into a partnership arrangement with the hospital and dispensary. In cities where there is but one medical school this will be an easy matter; in cities like New York, where there are several schools which will probably continue, a plan of cooperation must be entered into. Our municipal hospitals must be taken out of politics. The best practical way of meeting this problem is to make a long contract or arrangement between the hospital and the medical school, giving the medical school the right to nominate the attending staff subject to confirmation by the hospital trustees. This medical staff should then have charge of the medical arrangements of the hospital. The salaries of these men should be borne by the university and not the hospital. Special facilities for teaching should be provided by the universities, but the expense of conducting clinical laboratories and research laboratories in the hospitals should be borne by the hospital as a part of its own work. The medical management and the hospital management must work together as partners and not in the position of employees and employer. A small executive body composed of the head of the board of trustees, the hospital superintendent, the head of the training school and two or three medical men should meet often, at least once a month, best at the hospital at lunch-time, and discuss all the important business so that there can be good team-work among the various departments of the hospital. The medical service of course must be continuous and each department should be under a single head, who should also have charge of that particular subject in the college and in the dispensary. Appointments and promotions should be made on the nomination of the president of the university, the dean of the medical school and the head of the department, these of course to be confirmed by the trustees. In each clinical department, the three functions, the teaching of medicine, the training of teachers and research workers, and research itself should be developed. Each man in the department should be doing clinical work, teaching and research work.

In addition to a large general hospital the medical school should make affiliations, as done here at Harvard, with special hospitals, orthopedic, children's, maternity, eye and ear infirmaries, hospitals for infectious diseases, etc. There are two other points which I should like to discuss.

First, who should be appointed as hospital attending men and as clinical teachers?

Second, how should the hospital with its outpatient department be used in teaching medicine?

The answer to the first is that we should appoint the strongest man who can be secured for the place. In regard to this question there has been during the last few years a somewhat heated discussion. Shall we appoint men to our clinical chairs who will devote their entire time to teaching, hospital work and research and who shall do no private practice for fees and whose income shall be limited entirely to the salary of his chair? This position has been under consideration by a number of university authorities and was championed quite strongly by Abraham Flexner in some testimony given before the Royal Commission which recently investigated the subject of university teaching in London. I think the men who take this view do not fully understand the situation. Flexner, as I understand his testimony, cited, as examples where this was carried out, the clinicians of Johns Hopkins and of the German universities such as Friedrich Müller of Munich. As a matter of fact in neither Germany nor Johns Hopkins are the clinicians restricted in any way in their personal right to employ their medical and surgical skill as they see fit. It is of course unfortunate when, as sometimes happens, a clinician called to a chair in an important university proceeds to capitalize the reputation of the university and makes it pay handsome dividends into his own pocket; but on the other hand it would be unfortunate for American medicine if our great university clinicians were placed in a position where their services were rendered exclusively to the poor, and the well-to-do were deprived of them. Here again we must turn to Germany as a model. I am quite willing to accept Friedrich Müller as an example to be followed here. Müller himself does not think that it would be well to deprive the clinical teacher of the right and opportunity to do a limited amount of private practice. He believes that the university teaching and hospital and research work should have the first call on the teacher's time and that he should devote the greater part of his hours and energy to these. On the other hand he feels that to deprive the clinical teacher of the right to practice would separate him from the medical profession, and he would soon lose the broad point of view of medicine so necessary in one who is training medical practitioners.

I feel that it would be a very great mistake to put our clinicians on a rigid salaried basis and divorce them from the practice of medicine. It would fill our university chairs with mediocre men and deprive the medical school of the services of the best brains in clinical work. Besides it is not necessary, in order to insure the best clinical teaching and research work, to deprive the clinician of his right to charge for his services. Make provision in the teaching hospital so that the head of the clinical department can have a consulting room and a few private rooms. Let him take care of his private cases with the same team and laboratory with which he does his charity work. A man who pays a fee for an operation or a consultation is just as valuable a unit in a clinical research as the charity patient. It is unfortunately true that in this country we have not as yet developed the right type of clinical teacher in our medical schools. We should do as they do in Germany: fill the clinical chairs with men who are university professors, and who will devote the necessary time to teaching and research. In addition to the clinical teachers of the university type the medical school should utilize as extramural instructors the well-trained clinicians with good hospital and dispensary appointments in outside institutions.

How should we use the hospital and dispensary for clinical teaching? In the present period of reorganization of medical teaching in this country there is a tendency to try out a number of different plans, and we have naturally turned to Germany and Great Britain for models and have tried out some original ideas of our own. I do not think that we could do better than adopt the general plan of the German university medical school, which so far is the best that has been developed. It is not perfect and I think we can improve on it in several particulars, especially in better supervision of the students and in the far greater value of the intern year in America as compared with the present compulsory hospital year in Germany. The hospital year has not been

satisfactory in Germany so far because the permanent assistant has crowded out the intern and given him no opportunity. In the ideal seven-year course in medicine which will shortly be the generally adopted medical course in this country, four years will be devoted to physics, chemistry, biology, anatomy, physiology, pathology and pharmacology, and three to clinical medicine, the first two in the medical school, the last in internship in the hospital. How shall we handle these three clinical years?

From my study of this subject during the last ten years I have been forced to the conclusion that there is little place for a scheme of elective studies in the undergraduate medical course. The medical man, no matter whether he is to be a general practitioner, a specialist, a medical teacher or a medical research man, must have as a foundation to build on at the very least that general knowledge of the sciences which can be obtained in the limited time of the medical course. The time is so short, there is so much to learn, that if he makes an attempt to specialize he necessarily neglects some phase which is essential to a well-rounded view of the entire subject.

First, in these clinical years provision should be made to continue the studies of anatomy, physiology, pathology and pharmacology as applied to clinical medicine, as well as for taking up the purely clinical subjects. The method of dismissing these subjects after a term or two of work is a great and serious mistake. The fundamental sciences on which medicine is based should in some form be carried throughout the entire course. In this way much better team work can be done between the physiologist, for instance, and the teacher of clinical medicine and surgery. Possibly I can best illustrate my conception of the clinical course by outlining the clinical work in the department of surgery with which I am most familiar.

In the third and fourth years of the medical college course proper there can be fairly assigned to surgery from five hundred to six hundred hours, that is from two hundred and fifty to three hundred hours each year. How can this amount of time be best employed? The ground that must be covered includes courses on surgical anatomy, surgical pathology or principles of surgery; regional surgery, including the surgery of the head, neck, thorax, abdomen and extremities; operative surgery on the cadaver and animals; orthopedic surgery, genitourinary surgery, dispensary clinics, large amphitheater demonstration clinics and small ward hospital clinics. In passing let me say a word in defence of the amphitheater clinic which has lately been criticized and in some schools done away with. I believe that here as in Germany we must retain the large amphitheater teaching clinic of the chief as the back-bone of each clinical department. Visit the teaching clinics of von Eiselsberg, of Garré, of Kocher, of Krause, of Müller and you will find them the most instructive and the most essential work of their courses. The large amphitheater clinic of the chief must of course be supplemented by small section work done by assistants and by the other courses above outlined. Now when you make provision for all of these courses, what is there left of the five hundred or six hundred hours which have been allotted to the surgical department? Very little time to give a thorough hospital training. The point I want to make is that in a well-organized surgical course there is not enough time in the third and fourth years to give a thorough hospital training to the senior student. The only way out of the difficulty is to add a hospital intern year and make it an integral part of the medical course. There is another reason, too, why this should be done and a very important one, especially as applied to the department of surgery, and it is this: that the young medical man can in fairness to the patient and to himself handle serious hospital surgical cases only when he has become a part of the medical or surgical machine which is providing proper medical and surgical care for the patient; that is when he is a hospital intern.

The dispensary offers the best opportunity for the clinical teaching of the third and fourth years and it is usually the most neglected. Of the two a complete well-organized teaching dispensary is of more importance to a medical school than the hospital. The dispensary should be under the direct control and management of the chief of the department and his assistants, and if properly utilized it will furnish the bulk of the material needed in undergraduate clinical instruction. I do not wish to belittle in any way the value of the clinical training in the hospital; but the point I desire to make is that the amount of time that can be allotted to hospital work in a well-rounded medical curriculum of four years is so small that at best it is but an introduction to the real hospital work which must follow, that is that of the hospital intern. Is it possible to provide hospital internships for all the graduates in medicine? The Council on Medical Education is now looking into this matter fully and within a year or two will make a report on the relation of the hospitals of this country to medical education, and with special reference to the question of a compulsory intern year.

We can say now, however, that there are more than four thousand hospitals in the United States with more than two hundred and fifty thousand beds. There are at present about four thousand men graduating each year in medicine. Estimating twenty-five patients to each intern, this would make places for ten thousand interns or would furnish the four thousand graduates places in the better 40 per cent. of the hospitals. The requirement for the intern year will come from the state licensing boards. Each medical school should see that a committee on the intern year makes a list of acceptable approved hospitals open to its students and that each student is provided with a hospital appointment; if possible some affiliation between these hospitals and the medical school should be made so that the faculty can keep in touch with the hospital and student and satisfy themselves that the hospital service is of value and that the man has done acceptable work as an intern.

I have had the pleasure and opportunity in the last two days of looking over your medical school, your hospitals and dispensaries. I believe that you have here in Boston an opportunity to develop one of the great medical schools of the world. In order to accomplish this you must build on a broad foundation. The three great functions of a medical school must be recognized as essential and each one properly performed, the making of practitioners of medicine, the production of trained teachers and research men and lastly medical research work itself. Make your school so big and broad that its great opportunities will not be limited to a few men but will produce well-trained scientific practitioners for the large territory that is within your sphere of influence. Develop a great number of trained teachers and research men who will carry the torch to other institutions and other communities. Seek to master the great unsolved problems of the cause and cure and prevention of disease so that from your laboratories and clinics there may come great medical truths that will prove of service to all mankind.

As individuals and as a university take an active, enthusiastic part in the great progressive movement which has been initiated and is being carried on by the American Medical Association, which has for its purpose the raising of the standards of the profession and the securing to the public the great benefits offered by modern, scientific medicine.

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THE PHILOSOPHY OF MASTICATION

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The chewing of our food is a subject of more or less interest to all of us. Beginning with the precept inculcated in every nursery, we are constantly admonished throughout life that thorough mastication is a prerequisite to health; while a rather recent school of thought contends that the whole process of bodily nutrition is markedly affected by the preliminary treatment of food in the mouth.

Mastication is an entirely voluntary act, while the performance of swallowing is a complicated reflex movement, which may be initiated, voluntarily, but is, for the most part, completed independently of the will. Under normal conditions the presence of moist food on the tongue seems essential to the completion of this act, and I might add that a pleasant taste, coupled with a favorable mental attitude, still further facilitates the passage of food down the esophagus.

Too rapid eating, or tachyphagia, is a frequent fault, and has no doubt caused many digestive qualms, besides being the starting-point of many chronic disorders of the alimentary tract. This I admit. What I do *not* admit, however, is the necessity for slow, deliberate and systematic mastication as a sine qua non for health in every individual, irrespective of temperament or station in life; nor do I believe it conducive to the best work of the digestive organs that a hard-and-fast rule be enjoined, whereby a certain stated period must be devoted to the mastication of a meal, regardless of the pleasure of the masticator.

From time to time apostles of deliberate mastication, or bradyphagia, have appeared on the horizon, the most prominent of these being Mr. Horace Fletcher, whose work, "The A. B. Z. of Our Nutrition," is so largely devoted to this topic, and who so well pleads its cause, that slow eating has come to be called "fletcherism"; and to chew and insalivate food until it liquefies in the mouth is to "fletcherize" it, according to the nomenclature.

Mr. Fletcher is an American, who, when middle-aged, obese, dyspeptic and discouraged, discovered that by slow and deliberate eating his health improved, and began to elaborate this supposedly new principle. Asserting that he literally chewed himself back into health, he also argued that by the extreme mastication and insalivation of food, appetite is satisfied with a much smaller amount than is ordinarily craved, while at the same time bodily and mental well-being is greatly enhanced.

Mr. Fletcher was really anticipated by Mr. Gladstone, who, as the first advocate of this fad in England, attributed much of his success in public life to the fact that he had always made it a rule to give every tooth a chance, counting thirty-two bites for each morsel.

Under Mr. Fletcher's skilled exploitation, mastication as an art has grown and budded and blossomed until it has become a new theory, so popular that any one seeking to impede its continued fruition is considered by many either an iconoclast or an ass.

As regards the protein constituents of food, insalivation exerts but little effect. We well know that either the pepsin and hydrochloric acid in the stomach or the trypsin beyond will attend to them, if they are decently comminuted, and their stay in the mouth need be only long enough to originate those psychic impulses which Pawlow has shown us regulate the subsequent flow of digestive juices. Carnivorous animals and reptiles habitually bolt their food, and zoologic history furnishes no record of any psychic forms of dyspepsia in these creatures. The essence of salivary digestion is the transformation of starch into sugar by the action of the ptyalin, and that process, though inaugurated in the mouth, continues until the whole of the stomach contents has become acid. The time of salivary digestion is brief, and to be effectual should be energetic. No more should be expected of it than a preliminary act. The pancreatic and other juices beyond the stomach will care for the starches, if only the psychic centers forward the tidings as received by the gustatory senses.

As to the method or comparative rapidity of chewing, I might say, and say correctly, it is to a great extent temperamental. As some people can perform a stated task, and perform it well, in half the time required by slow-moving individuals; and as some people move quickly, speak quickly and think quickly, so they also chew quickly, but well. By those ardent and strenuous spirits who are happiest when in the busy turmoil of competitive struggle, the act of mastication is naturally performed briskly, but none the less adequately. To that other class, who desire to meander through life in a leisurely way, "far from the madding crowd's ignoble strife," to those semivaletudinarians whose gastronomic powers are under constant mental scrutiny, fletcherism promises the fountain of youth.

Another objection to interminable mastication is the brevity of life. In one place Mr. Fletcher relates that one-fifth of an ounce of a young onion required 722 chews before it disappeared through involuntary swallowing, and Dr. Kellogg mentions a patient who cheerfully spent never less than an hour and a half in masticating his one small daily meal. To insist that busy men, those whose shoulders and minds bear the burdens and cares of government, commerce or literature; whose eager intellects are conquering the earth, the sea and the air — to insist that these should be subjected to a wearisome mastication of inanimate food, is a delusion and a snare, an anachronism in our twentieth-century civilization, and a frittering away of priceless time.

A short while ago there consulted me a cadaverous-looking dyspeptic, who informed me that, up to his retirement from active business five years ago, he had never experienced a digestive discomfort. During his laborious years he ate his breakfast hurriedly, so as to get to the store betimes. His lunch was snatched at a nearby restaurant, while his evening meal was frequently rushed by some important engagement. The finer details of mastication never entered his head, nor did he realize that he was "digging his grave with his teeth," until so informed by an overzealous friend acquired in his new life of leisure. The small seed, once sown, took root in his idle mind, and, with little else to do, he devoted himself assiduously to fletcherizing his food and safeguarding his health. The result of this was a morbid introspection, which transformed a robust, alert business man into a puny, whining invalid, full

of pains and obsessions, and with every waking thought short-circuited on his stomach. That this is not an uncommon case any observant physician will testify.

The students of digestion and nutrition, guided by the beacon lights furnished by Pawlow and Cannon, are each year according more and more potency to the psychic factors involved in every function of those organs, and benighted indeed is the intellect that can comprehend only the mechanic and chemic aspects of these all-important questions. When an appetizing meal is placed attractively before a hungry diner, both the eyes and the olfactories set in motion the preliminaries to the digestion of that meal. As each mouthful is received by the waiting gustatory tract, it is chewed and insalivated just enough to promote easy deglutition, and to allow its savory taste and aroma to be thoroughly appreciated. In the meanwhile numerous messages are being sent to the stomach, pancreas and other organs concerned, informing them in language perfectly intelligible how much and what kind of aliment is being sent them to digest. Should the messages be of cheerful import, these organs set to their tasks with alacrity, performing them with such ease and dispatch, that the fortunate owner need not know that he even owns a stomach.

On the other hand, should the same meal be taken with severe gastronomic contemplation, and with arduous and lengthy mastication, the message may be "flashed" to the same waiting organs: "Your master has lost confidence in you, the mouth and teeth will take over the most of your former duties, and hereafter you will be under constant mental surveillance." It is easily understood that under such conditions digestion is performed in a halting, complaining and unsatisfactory manner, and well may we say that "the last state of that man is worse than the first."

A certain amount of necessary chewing is advisable, as evidenced by the conformation of the human teeth. If the chemical functions of the stomach are deficient, or if the outlet is greatly constricted, fine mastication and thorough insalivation are highly beneficial. Fletcherism is also allowable in those lackadaisical creatures whose tastes are gently epicurean, and who possess the desires of a Lucullus, minus the initiative. Let these harmless souls chew to their heart's content, for they need some fad, and this one can harm no one unless it be themselves.

To the great majority of every-day Americans, a simple injunction as to good teeth and ample mastication is entirely sufficient. But to those ardent beings who move impetuously through the drama of life, whose every act is intense and every movement like a flash—to these fletcherism is a thorn in the flesh, causing them to worry and chafe like a spirited horse held back by a cruel bit.

Each division of the alimentary tract has its rightful duties in the life-scheme of nutrition, and the magnification of any one is liable to prove an opening wedge for various digestive ills, that, like jealousy, furnish the food they feed and grow on.

As we cannot by thought add one cubit to our stature, so let me close with the paraphrase, "No man can by taking thought add energy to his stomach."

Pure Milk a Community Problem.—The milk business is not the farmer's but the community's business, and unless the members of a community work together for good milk they will never have it.—Horatio N. Parker, M.D., in *Child Welfare Bull.*

SPASM OF THE LUMBAR MUSCLES

A DIAGNOSTIC SIGN IN INFLAMMATION OF THE KIDNEY

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The study of visceral reflexes offers a fruitful field in diagnosis. It is strange that the sensory, motor and trophic changes dependent on reflexes caused by visceral diseases have not been worked out more carefully. The motor changes due to appendicitis, diseases of the gall-bladder, and ulcer of the stomach and duodenum have long been known; but similar changes due to disease in other viscera have been suggested very slowly. I called attention to a resistance in the muscles of the right half of the abdomen, particularly the upper portion, when the ileum is the seat of a tuberculous involvement.[1] I have also pointed out the spasm of the lumbar muscles when the kidney is the seat of a tuberculous involvement.[2] It must be remembered, however, that these reflexes are not peculiar to tuberculosis, but are present whenever any inflammatory condition is present in these viscera. I have also pointed out that the same motor visceral reflex is to be found in the presence of inflammations affecting the lungs and pleura, and that it can be detected in the muscles of the neck and chest. Much of our stimulation to the study of visceral reflexes, as well as our knowledge of them, comes from Ross, Head, Egger, Mackenzie and Bálint in Europe, while I have urged their importance in America.

The principle of these reflexes is simple, although it does not seem to be generally understood. The reflex is segmental in character; that is, while individual fibers of the nerve may take their origin from more than one segment of the cord, the fibers from only a single segment may be involved without disturbing the remaining fibers. Therefore, the entire nerve is not necessarily involved in the reflex, but only certain fibers of it. From this we can plainly see that one muscle of a group, or a portion of a muscle may show spasm, while the rest of the group, or the other portion of the muscle does not, although the entire group or entire muscle is supplied by filaments from the same nerve. Only those fibers of the nerve are involved which take their origin from the cells affected by the stimulus as it comes from the cord through the fibers of the sympathetic which supply the inflamed portion of the viscus. Therefore we should always expect reflex motor, sensory, trophic and even secretory phenomena to be expressed through the nerve fibers coming from a segment of the spinal cord when the particular cells of that segment which give them their origin are irritated. Thus, for example, when the viscera (or any part of a viscus), which are supplied by sympathetic nerve fibers from the third cervical segment of the spinal cord are inflamed, some of the cells which give origin to motor, sensory and trophic fibers in the same segment will be irritated by the impulse carried to the cord through the sympathetic fibers, and produce motor, sensory and trophic changes in the parts which these fibers supply. The same is true of any other segment of the cord which gives origin to nerve fibers supplying the viscera. It only remains for us to work out the areas carefully. Future investigations will undoubtedly show definite areas for motor,

1. Pottenger, F. M.: Interstate Med. Jour., May, 1911.
2. Pottenger, F. M.: Muskelspasmus und Degeneration, ihre Bedeutung für die Diagnose intrathorazischer Entzündung und als Kausalfaktor bei der Produktion von Veränderungen des knochernen Thorax und leichte Tastpalpation, Beitr. z. Tuberk. (Brauer's), xxii, No. 1, 1912, 1; Muscle Spasm and Degeneration and Light Touch Palpation, Mosby & Co., St. Louis, September, 1912.

sensory and trophic disturbances which we shall be able to assign to each organ or part of organ.

My method of study has been entirely clinical. By palpation I have endeavored to find the motor and trophic changes. In the presence of acute inflammation the reflex shows as a spasm of the muscles while, if the inflammation becomes chronic, degeneration occurs, the soft parts atrophy and changes occur even in the bones, cartilages and joints, which can safely be attributed to trophic disturbances.

Head, Egger and others have proved the sensory changes in the skin. Bálint from the Koranyi Clinic in Budapest has studied the muscle changes by means of their electric reaction. In 1903 he published the fact that in the presence of pulmonary tuberculosis there was a difference in the electrical reaction to both the galvanic and the faradic current in the chest, arm and neck muscles on the side of the involvement. In a recent paper Bálint and Egan[2] published further studies with reference to the electrical reaction of the muscles in case of inflammation of the kidney, gall-bladder and ulcer of the stomach and duodenum and promises for a future paper which shall be a complete study along this line. This work will undoubtedly add to our knowledge of diagnosis of visceral inflammations.

The kidney reflex (muscle spasm) which I wish to describe is not very difficult to elicit. It is found by placing the patient on a comfortable stool or chair so that his feet are flat on the floor. He is then instructed to sit erect, but relaxed, so that the lumbar muscles are not put on a stretch. These muscles are now examined by light palpation. Any difference in tension should be observed. If one kidney is the seat of an inflammatory process, the muscles on that side will be firmer than normal. If both kidneys are inflamed the lumbar muscles on both sides will be firmer than normal to the touch. It is often plainly visible that the muscles on the affected side are larger and stand out more prominently than the corresponding muscles on the other side. The most important thing to remember in looking for the spasm here, the same as in examining the muscles of the abdomen, chest or neck, is to have the muscles relaxed. The muscles which are being examined, as well as those with which they are being compared, must be relieved of all tension, otherwise errors will creep in.

The importance of these reflexes is self-evident. At a glance one has a suggestion that a kidney may be inflamed, or the seat of a stone or a tuberculous process, or some other inflammation. In tuberculosis of the kidney, when operation is considered, this is of special value. It will prevent the disaster which sometimes occurs when after one kidney is removed, it is found that the other one is also involved. The importance of this is evident from the fact that a tuberculous kidney does not always cast off bacilli. Catheterization of the ureters and a failure to find evidence of tuberculosis in the catheterized urine does not prove that the kidney is not tuberculous. The presence or absence of spasm of the lumbar muscles, however, or a normal or altered electrical reaction, as determined by Bálint will unquestionably be of value in these cases. With the experience that I have had with tuberculosis of the kidney, since announcing this reflex, I am sure that no kidney should be removed for tuberculosis, except as a life-saving measure, if the lumbar muscles on the other side are the seat of spasm.

2. Bálint, Rudolf, and Egan, Ernst: Ueber Veränderungen der elektrischen Reizbarkeit der Muskeln bei Erkrankung verschiedener Organe, Berl. klin. Wchnschr., Dec. 2, 1912.

A CASE OF SPASTIC PARAPLEGIA, WITH DORSAL ROOT SECTION FOR PAIN AND SPASTICITY

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Patient.—J. C., aged 37, single, admitted Oct. 6, 1910, to the Buffalo General Hospital. Family history, negative. Usual diseases of childhood. Railroad accident at the age of 7 leaving right ankle ankylosed. Typhoid at 17; recovery complete. At 19, acute rheumatism of joints of legs for six months; another attack at the age of 21, which lasted nine months; recovery. Two attacks of gonorrhea at ages of 23 and 25, leaving moderate stricture; chancre at age of 35; patient had been treated for that and for the stricture.

Present Illness.—For some time past, patient had a sensation about the body like a girdle pain and some numbness of the legs; had some trouble in walking. Sept. 25, 1910, he felt a sudden shock like an electric current go through the body; abdominal muscles grew tense; patient had to be taken home and later entered the General Hospital. Complaint: girdle pain, tense abdominal muscles and trouble in walking.

Examination.—Large, well-nourished man. Heart slightly enlarged with some arteriosclerosis present. Urine normal. Wassermann positive. Slow dragging walk. Sensation good; knee-jerks exaggerated, doubtful clonus, no Babinski. Probable diagnosis, hysteria; later diagnosis changed to spastic paraplegia, due to syphilis of the cord.

Treatment and Course.—The patient remained at the hospital for several months, receiving general treatment and three doses of salvarsan. The hysteric symptoms continued, and gradually positive signs of spinal cord involvement appeared and increased. In May, 1911, he was admitted to the Erie County Hospital. At this time spastic paraplegia was marked, with flexion and adduction of the legs. Patient complained of severe pain in the abdomen and legs; he was unable to stand or walk, spasticity was extreme; reflexes were increased except at right ankle, which was stiff from ankylosis. There was some voluntary motion in the left leg, and partial loss of control of the sphincters. The patient remained in bed, complaining bitterly of pain, drawing sensations and constipation. The spasticity increased until he could be lifted from the bed like a board, all the muscles, especially the abdominal and erector spinae, in a state of extreme contraction. On account of the increasing pain and spasticity, unrelieved by treatment, it was decided by Drs. Putnam and Kauffman that section of the posterior roots was indicated. The site determined on was the lower dorsal region, as the symptoms were centered in that area. If this operation should afford partial relief, a second operation was anticipated in the lumbar region.

Operation.—Oct. 13, 1911, by Dr. Le Breton; ether anesthesia. Incision from the eighth dorsal to the first lumbar vertebrae. Spinous process of the twelfth dorsal removed, trephine applied to its base, and button of bone excised; rongeur used until the dura was bared from above the ninth to the first lumbar vertebra; dura opened; flow of clear fluid; posterior roots cut, ninth, tenth, eleventh, twelfth and first lumbar, each side, resecting when possible portions of the roots. Catgut to dura, muscles and skin; no drainage.

Postoperative History.—The following day the spasticity had disappeared everywhere; reflexes absent; loss of bladder control complete; loss of control of the left leg; complaint of great drawing pain inside of the abdomen.

One week later, partial return of bladder and leg control. Area of anesthesia across the abdomen from navel to upper thighs, about corresponding to the lower intercostals, iliohypogastric and ilio-inguinal nerves, also a narrow area across the lower back. The edges of the wound separated slightly with some serous oozing.

Two weeks later, some purulent discharge from under the skin reaching to the muscles beneath.

December 16: Wound healed. Loss of weight and strength; complaint of severe pain constant; patient states that the pain in the abdomen is worse than ever; slight return of spasticity in all muscle groups and of the reflexes.

December 23: Patient very costive; pulse 116; loss of strength; patient states that he wants to die; very hysterical; spasticity returned all over and very severe; anesthesia across abdomen as before; bedsore on buttocks.

Jan. 4, 1912: Condition bad.

January 26: Death from inanition and exhaustion. A necropsy could not be obtained.

COMMENT

The indication for this operation is the necessity for relieving pain or spasticity or both. This case seemed ideal because of patient's age and general strength and the fact that both the pain and spasticity were so marked and kept increasing in intensity. On account of the hysterical element it was sometimes hard to believe what the patient had to say about the severity of the pain, but the spasticity had to be felt to be appreciated. The reason for the report of the case is the fact that in the area most complained of, that is the abdomen, there was no relief from pain—the patient maintaining to his death that it was worse than before; and the fact that within ten weeks' time the spasticity had completely returned, the recti abdominis looking like bowstrings.

In the recent literature on posterior root section, an article by W. A. Jones[1] gives the best idea of the consequences of this operation, as he summarizes in a useful way the experiences of others. The majority of these report partial or complete success, but some had been disappointed by the return of the pain or spasticity after the operation. The explanation of the return of pain is that the lesion is central to the root section or that the pathway for pain sensations may lie elsewhere than in the posterior roots. The explanation of the return, partial or complete, of the spasticity is not well understood. Nor has it been understood why in one case there occurs anesthesia, in another hyperesthesia, and in yet another, no changes in sensation.

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POLIOMYELITIS IN GUINEA-PIGS*

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P. H. Roemer[2] has noticed that guinea-pigs in his laboratory frequently died of a paralysis which was very similar to that of epidemic poliomyelitis. On studying the cause of this paralysis he found a non-bacterial, filterable virus which could be transmitted from guinea-pig to guinea-pig, and which caused, after an incubation period of nine to twelve days, a flaccid paralysis, usually of the hind legs, with involvement of the bladder. Microscopically this condition also resembled the pathologic picture of poliomyelitis in man. No other investigators report any successful results in this species of animals.

Oct. 11, 1912. Monkey 20 (*Macacus rhesus*) was injected with an emulsion of the cord of a monkey that suffered from poliomyelitis of a very high virulence, obtained through the courtesy of Dr. Clark of the Rockefeller Institute. This injected monkey was placed in a cage with a wire bottom. October 14 the animal, which was sitting in a corner of the cage, was reported ill. The cage containing the monkey was placed by one of the attendants on a cage in which there were guinea-pigs. October 15, I found the monkey suffering from a paralysis of the muscles of the neck and apparently unable to raise its head which was hanging down. There was also a marked paresis of all four extremities and a discharge was dripping from its nose. October 16, two guinea-pigs were reported paralyzed in their hind legs and died the same night. A necropsy was done the following day on the monkey, which later on examination showed marked lesions in the cord, characteristic of poliomyelitis.

One of the guinea-pigs, dead when I saw it, was in the position with outstretched hind limbs in which it was described to have been while alive. The other was, unfortunately, through mistake, brought down to the crematory by one of the attendants before I could get hold of it. A necropsy was done in Guinea-Pig 1. The cord was edematous to such an extent that it was semifluid, and only a small part with the neighboring tissue was put into formaldehyd solution for hardening. The rest was put into a sterile salt solution for further injections. A piece of the nasal mucosa was also preserved in another tube. The thoracic and abdominal organs showed nothing abnormal. The histologic findings were as follows: There was a perivascular infiltration of mononuclear round cells in the pia of the anterior longitudinal fissure, and a pericellular infiltration of these cells in the anterior horns of the gray matter presenting a focal distribution and a marked neurophagocytosis. The degeneration of the ganglion cells was so far advanced that they were hardly discernible. There were also numerous hemorrhages in the gray matter of the cord. On no section was there any microorganism found.

October 25 Guinea-Pig 3 was inoculated with the emulsion of the cord of Guinea-Pig 1, by rubbing it into the mucosa of both nares. I avoided injection in order to make sure that any lesion that might result should not be attributed to a possible traumatism of the brain or spinal cord, and besides I wanted to imitate as far as possible the natural route of infection. October 31 the animal was reported as dying during a convulsive seizure. A necropsy was done the same day and the macroscopic findings were as follows: There was edema of the cord and brain, with a congestion of the vessels and no pus anywhere. The thoracic and abdominal viscera were normal. Histologically there was no perivascular infiltration of round cells, but there were marked hemorrhages in the gray matter (anterior horns of the cord), slight neurophagocytosis and a very marked degeneration of the ganglion cells of the anterior horns. There was also some infiltration of round cells in the pia around the olfactory bulbs, and there were hemorrhages in the gray substance of the olfactory bulbs and two foci of infiltration of glia and dark-staining round cells.

October 8, a smear of the nasal mucosa of Guinea-Pig 1 was rubbed on the mucosa of both nares of Guinea-Pig 4. This animal remained perfectly well for six days and was found dead October 14. The macroscopic changes of the cord and brain in this guinea-pig were very much the same as in Guinea-Pig 3. Histologically we found some perivascular infiltration of round, dark-staining cells in the white substance at some levels of the cord, and a very marked diffuse round-cell infiltration in the gray substance, especially in the anterior horns of the lumbar segments of the cord, with a complete degeneration of all their ganglion cells and minute hemorrhages in that region. The pia of the anterior longitudinal sinus was slightly infiltrated with round cells. There was also an infiltration of round cells in the pia lining the olfactory bulbs. No bacteria were seen on any of the sections.

As a control, the nasal mucosa of Guinea-Pig 6 were swabbed on December 19 with the filtered virus of the cord of a monkey that died of poliomyelitis. The animal remained well for twenty-four hours. December 21, the guinea-pig was decidedly ill, moved about with some difficulty and had a distinct paresis in the left hind limb. The animal was at once narcotized and

1 Jones, W. A.: Resection of the Posterior Roots of the Spinal Cord, THE JOURNAL A. M. A., Oct. 7, 1911, p. 1175.

* From the Department of Bacteriology, University and Bellevue Hospital Medical College, Prof. W. H. Park, Director.

2 Ergebn. d. inn. Med. u. Kinderh., 1912, p. 1.

necropsied. The cord and brain were quite edematous and the vessels were congested. Microscopically the cord presented at all levels the characteristic perivascular and pericellular infiltration of leukocytes but this condition was especially marked in the lumbar swelling on one side in the anterior horns of the gray matter, probably corresponding to the affected limb. Here the infiltration was more diffuse in the anterior horn and the ganglion cells were degenerated. The hemorrhages were quite marked at all levels in the gray matter in the cord. The brain presented no characteristic lesions. The abdominal and thoracic viscera were normal. Bacteria were not seen on any of the sections. An emulsion of the cord and brain of this guinea-pig was injected into a monkey. The animal became quite ill two days after the injection and remained so for three days but ultimately recovered and is perfectly well now.

While I do not care to draw any definite conclusions from these few experiments, I believe I am justified in assuming, as did Roemer, that the first two guinea-pigs and Guinea-Pig 6 presented clinical symptoms and pathologic lesions of poliomyelitis and that the probable manner in which Guinea-Pig 1 was infected was through virus of the infected monkey mixed with the dust of the cage in which the guinea-pigs were confined, the dust obviously infecting the guinea-pigs through the nasal mucosa.

It is also pertinent to note that the guinea-pigs used had not been experimented with before and that their antecedents had been traced to the farm from which they came.

I desire to thank Drs. Reiley and Fraser for their kind assistance.

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THE GROWTH, THE DEATH AND THE REGENERATION OF BONE

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Radical differences of opinion have always characterized the teaching of the theory of the growth and regeneration of bone, but one factor in the process appears to have been unanimously conceded a place of great importance. The embryologists, the anatomists, the physiologists, the surgeons and the pathologists have agreed that the periosteum is not only a source of nutrition for the bone but that it also possesses definite osteogenic properties: that from the periosteum the osteoblasts have their origin, in part at least, for the formation of the bones of the fetus, and that the process for the regeneration of bone to replace portions destroyed by disease originates and develops largely in and from the periosteum.

In a recent article[1] one of the foremost American surgical anatomists of to-day says:

> In the new-born, and in young individuals, the periosteum is composed of three layers, the outer layer consisting mainly of rather coarse white fibrous tissue, a middle fibro-elastic layer, and an inner osteogenic layer. . . . In the adult, the osteogenic layer has practically disappeared, leaving here and there a few of its cells, a factor that must be reckoned with in every effort at osteal transplantation or grafting.

Another well-informed and progressive surgeon in an address recently published[2] says:

> Osteogenesis resides in the lower layers of the periosteum, the marrow and the soft structures within the haversian canals and lacunae.

Now comes Sir William Macewen of Glasgow with a little book[3] in which are detailed many observations from elaborately planned and executed experiments which, if substantiated and confirmed, completely upset our former views and necessitate a revision and correction of all the standard text-books on anatomy, physiology, surgery and pathology.

Macewen not only denies to the periosteum an osteogenic function but assigns to it a function of a diametrically opposite character: that chiefly of a "limiting membrane" for the osteoblasts to prevent their overgrowth into the soft tissues.

With reference to these functions of the periosteum he concludes as follows:

> It may be deduced from the foregoing observations and experiments that diaphyseal bone is reproduced by the proliferation of osteoblasts derived from preexisting osseous tissue, and that its regeneration takes place independently of the periosteum. *The periosteum is not essential to bone production* [italics mine]. Osseous tissue can pass through all the phases of its life, from its embryonic to its mature form, without the influence of or contact with this tissue.
>
> The periosteum is of great use in limiting within specific boundaries the distribution of the osteoblasts, and preventing them during their evolutionary period from being scattered into the soft tissues, where their presence would be prejudicial to the function of these parts. In the loose areolar tissue existing between the periosteum and the bone the osteoblasts find nutriment for their growth and space to generate, free from undue pressure. While not underestimating the periosteum as a limiting and protecting membrane, of great use in physiologic and pathologic conditions, there are no data to indicate that it can, of itself, secrete or reproduce bone. *It has no osteogenic function* [italics mine].

The acceptance and practical application of this truth, if truth it be, must materially modify the surgery of bones. A new point of view is presented from which, for example, ununited fractures and so-called provisional callus must be considered. The periosteum acting as a barrier to bone growth would of necessity be a factor in causing non-union if it intervened between fragments; and when extensively lacerated or destroyed, or when its function as a limiting envelope is impaired by a failure to immobilize the fragments, the formation of excessive callus through overflow of the osteoblasts into the surrounding soft parts would be inevitable.

All surgical teaching and practice based on the theory that reconstruction of bone depends on periosteum would have to be revised and rewritten.

The transplantation of bone *en masse*, without periosteum, already adopted and successfully practiced in human subjects, would be justified, and confirmed in its empiric position. Bone proliferation and cellular growth circumferentially from grafts *en masse*, or from bone chips and shavings likewise find logical substantiation which confirms the observation of actual results in men and animals.

The theory that such a graft "is *per se* not *osteogenic*, but *osteoconductive*,"[1] must also be held subject to revision.

Macewen's comment regarding this phase of the subject is as follows:

> Small diaphyseal grafts, when placed in a gap in the continuity of bone, show active proliferation from the whole cir-

1. Murphy, John B.: Contributions to the Surgery of Bones, Joints and Tendons, THE JOURNAL A. M. A., April 6, 1912, p. 985.
2. Roberts, John B.: Recent Advances in Plastic Surgery of the Bones, THE JOURNAL A. M. A., Nov. 16, 1912, p. 1759.
3. Macewen, William: The Growth of Bone, Glasgow, James Maclehose & Sons, 1912

cumference, each piece being an ossifying center from which osseous tissue is thrown out sufficient to fill the gap between the various fragments and to unite them together along with the two ends of the divided shaft. Under suitable surroundings the vegetative capacity of the osteoblasts is at least as great as any of the tissues in the body, and bone proliferation takes place from its whole surface circumferentially, while epithelium, for instance, proliferates only on the flat.

As an example of the eccentric growth of bone through rents in its periosteal envelope in an untreated fracture, I present a specimen (Fig. 1) from a young elk I killed in Colorado in 1892. The unconfined osteoblasts distributed through the periosteal rent by the constant use of the animal's leg have produced a large amount of exuberant callus in addition to that required to unite the fragments.

Another striking example is the formation of a bony wall for a false aneurysm when the ends of the fractured bone have at once lacerated the limiting periosteum and a large artery. The osteoblasts swept from the bone through the rent and carried by the blood-stream to the side wall of the aneurysm form plates or placques of bone on it, though they be entirely disassociated from both the bone and the periosteum.

The well-known importance of the epiphysis and of the plates of cartilage lying between the epiphysis and the diaphysis in their relation to the growth of the diaphysis is experimentally confirmed, as is also the protection afforded by this cartilage against the diffusion of infection.

"Once the epiphyseal plates of cartilage are well formed and complete, they become of service against the advance of pathologic products—as they then form a barrier to disease emanating from either the epiphysis or the diaphysis. In this way a pyogenic process emanating from the medulla of the diaphysis is prevented from spreading into the epiphysis, and consequently the joint is saved from invasion; and on the other hand, a tubercular process originating in the epiphysis is barred from encroaching on the diaphysis."

This limiting function of the cartilage (which Macewen prefers to call the diaphyseal cartilage because of its more necessary relation to the diaphysis) is exceptionally well illustrated (Fig. 3) in one of my cases in which after the sequestrum and pus were removed the Mosetig-Moorhof bone wax is shown by the skiagram to lie in a large mass directly against the cartilage, while no infection of the cartilage, the epiphysis or of the joint occurred.

In an analysis of Sir William Macewen's conclusions every surgeon of experience will review his own work and results and attempt to determine for himself how far he believes them to refute or confirm Macewen's findings.

Among the important questions to solve is an occasional apparently unaccountable extensive destruction of the diaphysis without any effort at reconstruction, while in another patient equally extensive death of the bone is attended by an immediate attempt at regeneration of the diaphysis which speedily goes on to the formation of a perfect bone after the dead bone and pus are eliminated.

As examples of these quite different phases of destructive osteomyelitis I beg leave to refer to two cases; I operated on the first patient and reported the case many years ago;[4] the second case I saw within the past year and still have it under observation.

4. Wetherill, Horace G.: A Case of Bone Reconstruction, Jour. Trenton Nat. Hist. Soc., 1886-1887, p. 52.

The sequestrum from each case is presented. From the second case the skiagrams showing the primary gap and the steps of the reparative process are also presented.

CASE 1.—During the winter of 1884 a girl aged 4 sustained a fracture of the lower end of the fibula about an inch above the epiphysis. The nature of the injury was not recognized by the family. Cold wet cloths were applied and she was allowed to hobble about the house for a week when the leg was immobilized on a splint. A fluctuating swelling was found over the seat of fracture which was opened and more than an ounce of pus evacuated. No union of the fracture occurred, and the opening drained freely for three months when a red spot, presenting deep fluctuation, was found over the upper end of the shaft of the fibula. This infected area was incised, and when the bone was examined through the incision its denuded surface could be felt. It was apparent that the shaft of the fibula was dead almost from one epiphyseal extremity to the other.

The end of the bone was caught with forceps through the lower incision and with a slight twisting motion the shaft of the fibula was easily withdrawn from its periosteal sheath.

I herewith present this sequestrum showing the erosion produced by the progressive osteomyelitis. The upper end shows more erosion than the lower (Fig. 2).

A rubber drainage-tube of small diameter was pulled through the periosteal sleeve by passing a probe from one opening to the other with a bit of string attached. Through this tube, the sides of which were perforated, the suppurating sinus was kept free from pus.

After a little time had elapsed it became apparent that the tube was being encroached on by the centripetal bony growth from the involucrum and the tube was removed.

Irrigations were continued as long as the sinus remained patulous. It closed, however, with great rapidity and the ultimate result was a complete restoration of the shaft of the fibula, though no union occurred at the site of the original fracture near the lower end of the bone.

CASE 2.—This was a fulminating osteomyelitis of the left tibia in a boy aged 6. In August, 1911, the abscess was incised and drained by another surgeon. In November of the same year the patient came under my care and was sent to the Children's Hospital of Denver.

It was apparent that there was extensive death of the bone involving the shaft from near the upper epiphysis to the junction of the middle and lower thirds.

On Nov. 21, 1911, he was operated on and the dead bone removed. The necrosis extended to the upper diaphyseal cartilage as is plainly shown by the shadow of the iodoform wax used to fill the space. *The periosteum was not destroyed* and was pushed aside to receive the bone wax. The periosteum and the muscles were then stitched over the wax with fine catgut and the skin closed over all with small openings to provide for drainage.

The general health of the boy improved at once though the sinus discharged more or less pus and portions of the wax were pushed out by the growth of the granulations going on beneath it.

The skiagrams made from time to time and herewith shown illustrate the gradual disappearance of the wax and the smoothing of the ends of the fragments.

After many months had elapsed it was evident that no union of these fragments could occur without intervention.

On July 1, 1912, a skiagram (Fig. 6) was made showing a small portion of the bone wax retained in the middle of the head of the tibia, the shadow of the little square below it indicating a bit of metal placed in the mouth of a small sinus on the surface. Later the same day this sinus was spooned out thoroughly, the remainder of the wax removed and the side-walls of the cavity containing it thoroughly scraped and sterilized by an application of pure phenol (carbolic acid). Prompt healing of the sinus resulted.

Sept. 28, 1912, all infection in the leg having disappeared, an operation for grafting a segment from the opposite tibia into the gap was undertaken. The space was opened and the periosteum denuded from both the upper and lower fragments.

Figure 1.

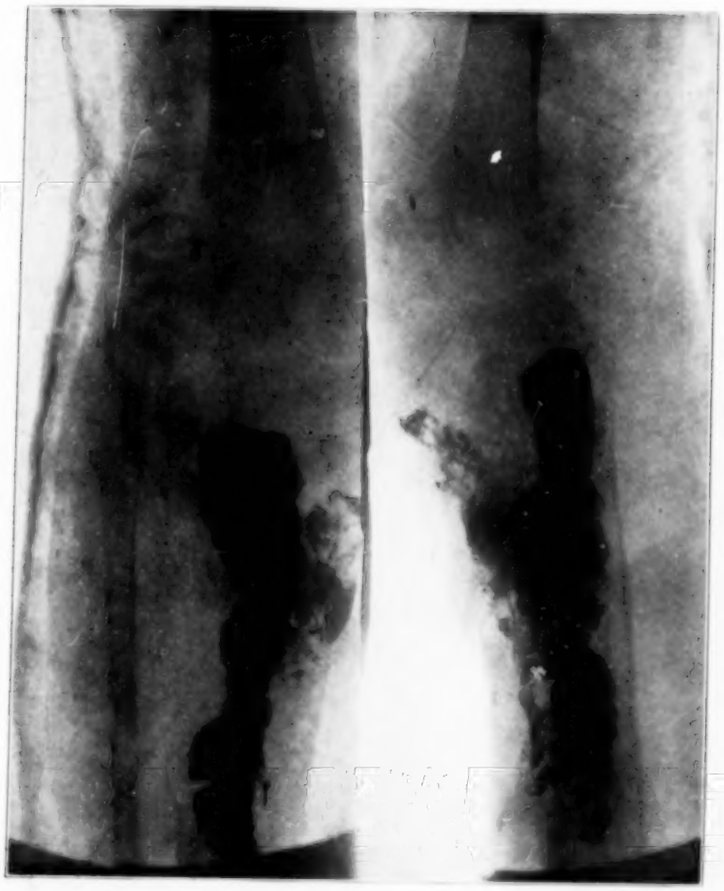

Figure 3.

Figure 2.

Fig. 1.—Specimen from young elk showing exuberant callus caused by lacerated periosteum and unrestrained motion between the fragments.

Fig. 2.—Sequestrum from Case 1. Diaphysis of fibula removed from its periosteal envelope. Complete restoration of the diaphysis followed the removal of this sequestrum without union at point of fracture near its lower end.

Fig. 3.—Case 2. Nov. 24, 1911. Skiagram through plaster dressing, showing Mosetig-Moorhof filling, in space left after the removal of the sequestrum. Note the broad encroachment of the filling on the diaphyseal cartilage and how the filling was pushed away from it in the process of repair, as indicated in the subsequent skiagrams. Front and lateral views. I am indebted to Dr. S. B. Childs for this and the following skiagrams.

Fig. 4.—Case 2. Jan. 25, 1912. The same leg two months later. Filling pushed away from diaphyseal cartilage and discharged from the wound or absorbed so that little remains. Note the rough ends of the tibia and the gap between the fragments.

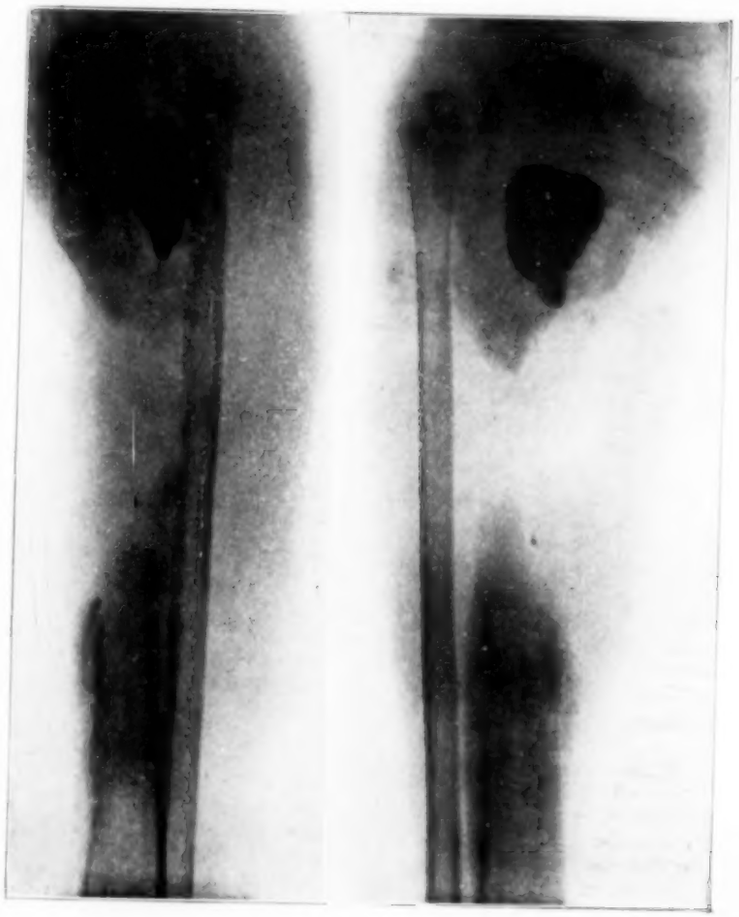

Figure 4.

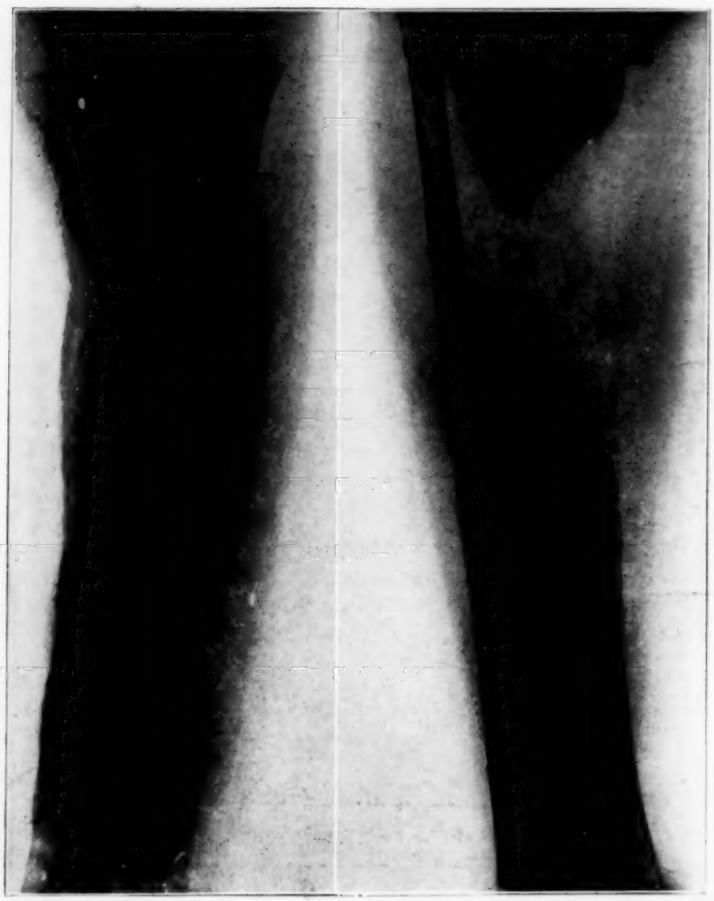

Fig. 5.—Case 2. March 25, 1912. Ends of the fragments becoming smoother and filling reduced in size.

The medullary canal was excavated to the depth of half an inch in the upper fragment and it was my purpose to do the same with the lower fragment; its oblique end, however, appeared so favorable for freshening and splicing the graft on in such a way as to bring broad surfaces together that this plan for making the union was adopted, as shown by the skiagram taken four weeks after the operation (Fig 8).

Figure 9 shows the tibia of the right leg and the site from which the graft had been taken.

The graft was 3⅛ inches long, five-eighths inch broad, and about three-eighths inch thick. *It was taken without periosteum.* The periosteum was regarded as being of more importance in protecting the sound tibia from infection and overgrowth than in the regeneration of the bone of the defective tibia. This slab of bone was driven into the excavation in the head of the tibia and secured by a silver-plated wire brad five-eighths inch long. The lower end was spliced to the freshened oblique surface of the lower fragment to which it was nailed with a similar brad and wired with two loops of phospnor-bronze wire. The muscles were approximated over the graft with catgut and the skin closed with fine silkworm gut over all.

The subsequent course of the case was attended by a slight evening rise of temperature. This was explained by a low-grade infection about the lower end of the graft which made the subsequent removal of the phosphor-bronze wire and the nail necessary. The use of the wire was a mistake. The infection did not, however, impair the vitality of the graft or prevent firm union between the graft and either the upper or lower fragment. Indeed, the union at the lower end seemed to be firmer and stronger at the time the wire was removed, about three weeks after the operation, than that at the upper end, and of the two methods of making the contact I believe that the oblique splice is preferable when the ends of the bones are conical or otherwise adapted to this method.

After eight weeks the tibia was firm, fairly uniform throughout, and *larger in diameter over the graft than the right tibia*, though no defect could be detected by palpation at the site from which the graft had been removed from the right leg.

These two cases and the exhibits bear study in their relationship to the points at issue which are:

1. Has the periosteum, *de novo*, an osteogenic function, or is it in the main a limiting membrane, which prevents overgrowth into the surrounding tissues?

2. Can bone live and grow and proliferate when denuded and disassociated from its periosteum?

3. When transplanted to fill a gap does it become osteogenic or is it merely osteoconductive?

Quoting only those portions which refer to the above items, I cite from a recent exhaustive summary these crystallized statements from an accepted authority, Dr. John B. Murphy.[1] I do this, not in a spirit of criticism, but from a desire to acknowledge gratefully the splendid original work he has done in this field and because his

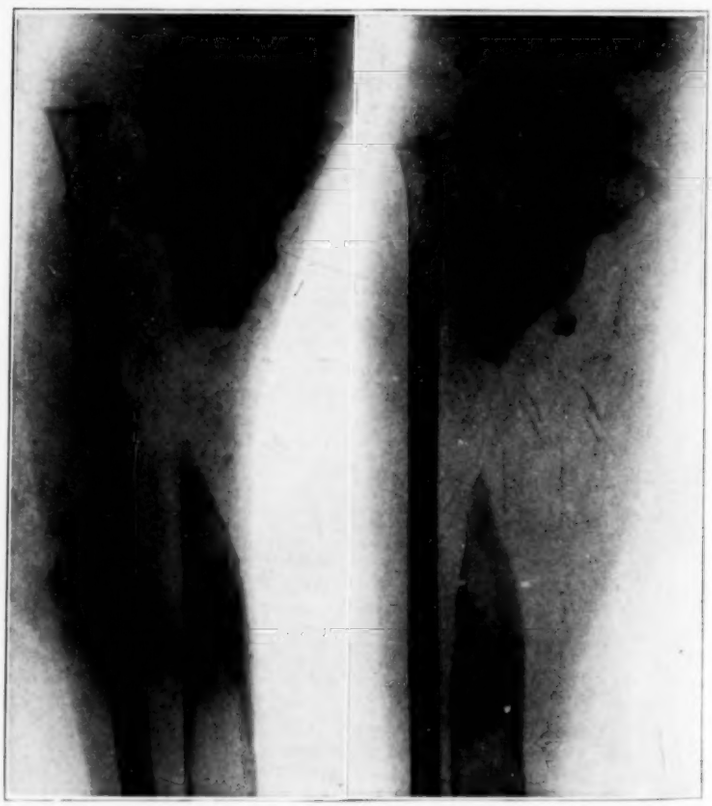

Fig. 6.—Case 2. July 1, 1912. Remaining Mosetig-Moorhof filling small and in center of the head of the tibia. The ends of the fragments smooth and pointed. The black square is the shadow of a small piece of metal. It indicates the opening of a sinus leading down to the filling.

Fig. 7.—Case 2, Sept. 13, 1912. Showing persisting gap in tibia and sharp points of fragments. Lines indicate points at which freshening of the fragments was contemplated.

utterances are regarded as the last word of the progressive workers and thinkers of America, and best exemplify the most advanced American teaching with regard to the subject:

> In order to achieve the best results in the work of bone-grafting and bone transplantation, the following laws must be observed: The periosteum fully detached from bone and transplanted into a fatty or muscle-tissue bed in the same individual, if he be young, may produce a lasting bone deposit. . . . Periosteal strips elevated at one end from the bone and attached at the other, if turned out into the muscle or fat, reproduce regularly bone on their under surface for a greater portion of their entire length. . . . Bone with or without periosteum transplanted in the same individual and contacted with other living osteogenic bone at one or both of the ends of the transplanted fragment always becomes united to the living fragments and acts as a scaffolding for the reproduction of new bone of the same size and shape as the transplanted fragment if asepsis is attained. This new bone increases to such size as is necessary to give the support required by Nature in the extremity in which it has been placed. . . . The transplanted fragment, no matter how large or how small, is always ultimately absorbed. . . . The graft is *per se* not *osteogenic* but *osteoconductive*. . . . The graft increases in size on the surface as bone increases in size histologically, i. e., by deposits beneath its newly formed periosteum. . . . When the graft is covered with periosteum at the point of contact with the living bone, the haversian vessels do not penetrate the fibrous periosteum of the transplant, and regeneration fails. . . . *If the periosteum of the graft is split into shreds, then regeneration through it may take place.* [Italics mine.]

Comparing these statements with the conclusions of Macewen we find an expression of a diametrically opposite opinion regarding the osteogenic function of the periosteum and the osteogenic function of bone-grafts and transplants, perfect agreement regarding the viability of grafts and transplants, and practical agreement regarding the limiting character of the periosteum, as is indicated in the last paragraph quoted.

Macewen's experiments invariably failed to grow bone from the detached periosteum and quite as invariably succeeded in procuring rapid new growth and active proliferation from transplants *en masse* or from shavings, *the more abundant proliferation always coming from the multiple small grafts*, which is not in accordance with the statement that "the graft increases in size on the surface as the bone increases in size histologically, i. e., by deposits beneath its newly formed periosteum," or with the assertion that such a graft "is not *osteogenic* but *osteoconductive*." Furthermore, I have found no authentic record of any instance, experimental or clinical, in animals or in man, in which periosteum detached from its bony contact has produced bone if no bone-cells or osteoblasts were carried from the bone with it.

For twenty-eight years I have thought of Case 1 as a typical illustration of the power of the periosteum to originate and reproduce diaphyseal bone under favorable conditions.

If, however, Macewen's theory is correct, osteoblasts were early thrown out from the diaphyseal bone through and by the aid of the local hyperemia occasioned by the primary infection. These osteoblasts were deposited in

Fig. 8.—Case 2, Oct. 25, 1912. Front and lateral views, showing graft from opposite tibia nailed in position to bridge the gap. The graft was driven into an excavation in the medullary canal of the upper fragment and spliced to the lower fragment, as shown in skiagram to the right. Silver-plated wire brads $\frac{5}{8}$ inch long were used. The graft was $3\frac{1}{8}$ inches long, $\frac{5}{8}$ inch broad and about $\frac{3}{8}$ inch thick, and was taken without periosteum.

the subperiosteal areolar space close to the lower layer of the periosteum. From this point they proliferated, multiplied and grew to form the involucrum and ultimately reproduce the diaphysis *in toto*, after the removal of the dead bone; and the periosteum had nothing to do with originating the bone reproduction. Doubtless the circulation necessary for the growth of the osteoblasts and for their proliferation was received in part from the periosteal vessels, but also in part from the end contact of the involucrum with the diaphyseal cartilage; but viewing the history of the case from Macewen's point of view and in the light of his conclusion, there is nothing to convince one that the bone grew from osteoblasts originating in the periosteum and nothing to disprove that the primary hyperemia did not cause their eccentric deposit in the subperiosteal areolar space from the diseased diaphysis before the destruction of the diaphysis was complete.

Fig. 9.—Case 2, Oct. 25, 1912. The shaft of the right tibia, showing site from which the graft had been removed. At the time this picture was made, four weeks after operation, no defect in the bone could be felt.

The second case presents an altogether different set of conditions; for in this instance the diaphysis of the bone was destroyed by a fulmination osteomyelitis throughout nearly two-thirds of its length *and its total circumference;* and though the periosteum was not destroyed, no continuity in the restoration of the diaphysis occurred or, so far as could be seen at the time of operation, had been attempted by the periosteum. Indeed, it appeared that the pointed ends of the bones had been covered by the collapsed infolding of the periosteum so that the growth of each fragment toward the other had been arrested by the periosteum and union so prevented, all of which points toward a limiting function rather than an osteogenic function for the periosteum.

This observation would appear to cast grave doubt on the osteogenic function of the periosteum if like results were noted in a sufficient number of similar cases.

In this case too the extremely rapid *overgrowth* of the new diaphysis would tend to confirm Macewen's claim for osteogenesis rather than osteoconductivity in the graft; and as the formation of the connective tissue envelope for the new diaphysis would require time to reproduce the new periosteum over and around the bone, overgrowth would be favored, provided, of course, that Macewen's theory of the function of the periosteum as a limiting membrane is correct. Other such observations in sufficient number will confirm this contention.

How extensive destruction of the diaphysis may sometimes occur without effort at reconstruction and how reconstruction is promoted under other conditions is explained by Macewen as follows:

> In acute osteomyelitis the infection is at first located in the medulla. In consequence of the great hyperemia induced beyond the area of infection, stimulating rapid tissue change and hyperplasia, the bone cells which are beyond the area of pyogenic invasion are converted into their embryonic condition and proliferate with great rapidity. Osteoblasts accumulate in the haversian canals, and, owing, *inter alia*, to the centrifugal blood-pressure, are extruded onto the surface of the shaft, where they infiltrate the meshes of the loose areolar vascular tissue which exists between the periosteum and the bone. The meshes of this layer become charged with osteoblasts, from which fresh layers of bone ultimately form. If the pyogenic invasion be progressive, the shaft may be involved and die, but prior to this necrosis, the osteoblasts which have escaped into the periosteum are preserved from destruction. If in a case of osteomyelitis the periosteum be removed from the bone at a very early stage, osteoblasts will still be poured out onto the surface of the shaft, and form there a layer of fresh bone between the muscles and the old bone. This has been directly observed on several occasions.

Fig. 10.—The radius transplanted from one dog to another without periosteum, with perfect restoration of the diaphysis and only moderate overgrowth. (After Macewen.)

> This is the usual course in osteomyelitis, but it does not always follow in this way. Occasionally necrosis of the whole shaft occurs without reproduction of bone under the periosteum. This may arise from one of at least two causes. The first occurs when the pyogenic invasion is more virulent, rapid and extensive, causing blockage of the vessels not only of the medulla, but also of the shaft, producing necrosis without a preliminary period of hyperemia, and consequently before regenerative tissue changes have had time to occur in the

Fig. 11.—Marked overgrowth from transplantation of bone in the form of shavings. The proliferation from many foci is exuberant and sufficiently aggressive to erode the adjoining normal bone. On the extreme left are normal bones given for comparison. The bones on the right are the same as those in the middle viewed from the side. (After Macewen.)

Fig. 12.—Showing total failure of periosteum to produce bone. The radius was subperiosteally removed and the periosteum carefully preserved. The styloid process of the ulna has been bent from pressure and an osseous nodule — about the size of a barley grain — projects from its extremity. (After Macewen.)

shaft. The second, where the main nutrient vessels of the shaft at a very early stage become thrombosed by pyogenic invasion, the blood-supply of a large portion of bone is cut off and necrosis occurs before proliferation within the bone can take place. In some such cases the periosteum participates in the destructive process, but it does not do so in all. Owing to its separate blood-supply, it is possible for the periosteum to live and it sometimes does so apart from the bone. In such a case, however, there is no regeneration of osseous tissue, there having been no osteoblasts regenerated from the bone and thrown from the shaft into the subperiosteal areolar tissue before necrosis set in.

This explanation of the death of the diaphysis *in toto* without any attempt at regeneration on the one hand, and of a hyperemic deposit of osteoblasts in the subperiosteal areolar space to form new bone on the other, fits in perfectly with what we now know regarding the action of emboli and infarcts, and of the effects of local hyperemia elsewhere in other tissues.

We are prepared, therefore, to accept this theory in accounting for both the destructive infection and the subsequent regeneration of bone under circumstances favorable to either.

We have seen elsewhere the deadly embolus instantly and irrevocably destroy every shred of tissue depending on the blocked vessel for life, and we have seen the slower invasion of an equally virulent infection met by a resisting and regenerating wall of leukocytes thrown out about it through the agency of a local hyperemia with early arrest of the infection and regeneration of the tissues. Why may not the same principles apply and operate in the same way in bones?

Fig. 13.—Flap of periosteum transplanted from the soft tissues. No bone was formed from such transplanted periosteum in any of Macewen's experiments. A slight overgrowth of bone occurred on the shaft of the radius from which the periosteum had been removed. On the left is a diagram showing flap of periosteum raised from bone except at proximal extremity, encircling muscular fasciculus and stitched to border of intact periosteum at lower end. On the right is shown a node-like increase of bone on shaft of radius at the part from which the periosteum was removed. (After Macewen.)

The growth, the death and the regeneration of bone have long been fearfully misunderstood if the new theories of Sir William Macewen regarding these processes are correct. He presents them clearly and logically and proves them by numerous ingenious experiments on animals and clinical observations on patients. He draws no conclusions he has not verified and his "comment" is so temperate and conservative that it carries conviction with it.

Viewed from Macewen's point of view and in his light I find the two typical cases, quoted in this paper, confirming my other observations under similar conditions, and I am ready to accept the new doctrine and adapt myself to it in its actual application to the day's work.

Should those whose better knowledge of the subject and larger opportunities for practical verification of the doctrine, both experimentally and clinically, confirm the conclusions of Sir William Macewen, much of the literature of medicine will have to be rewritten. The teaching of surgical anatomy and pathology must then be conformed to the new gospel and the practice of bone surgery be revolutionized.

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REPORT OF A CASE OF HYDROPHOBIA

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AND

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PHILADELPHIA

Physicians are called so frequently to treat patients who have been bitten by dogs, and so rarely to treat patients with hydrophobia or rabies, that it is not surprising to find some of the profession asserting that the disease does not exist in human beings. It becomes a duty therefore to report well-authenticated cases like the following:

K. N., a girl aged 5, was bitten in the cheek by a dog. The wound healed promptly.

Seventeen days later the child complained of feeling ill, and developed moderate fever, anorexia, constipation and mild delirium. On the next day the delirium increased so that she was restrained with difficulty. The father also stated that the sight of water made her crazy and that there was some frothing at the mouth; but these symptoms were not present on her admission to the Children's Hospital on the third day of the disease.

Examination on admission, June 13, 1910, showed a well-nourished child, very much excited and trembling greatly; the knee-jerks could not be elicited, but ankle-clonus was present; there was no opisthotonos; the pupils were equally dilated, reacting to light; the lungs and heart were clear; palpation of the abdomen gave negative results; a leukocyte count showed 31,000. The child's mental state showed a decided difference from that of ordinary delirium, such as is seen in fever patients, as there was no incoherence in her utterances; but she kept demanding different things ("Let me up," "Take these off," "I want to go home"), with a vehemence that amounted to a true mania, so that rabies (i. e., madness) describes this case better than hydrophobia. This mania was intermittent, not persistent, short periods of quiet intervening, to be broken spontaneously by some slight stimulus such as a new line in the examination or the entrance of some attendant. In order to exclude meningitis, which, however, was not thought to exist, brief anesthesia with ethyl chlorid was produced and lumbar puncture done, with the removal of 8 c.c. of perfectly clear cerebrospinal fluid.

One feature repeated so that it became noteworthy was that if allowed to hold the hand of an observer, the patient would begin to pat it affectionately, the force of the taps increasing until they were furiously violent. This may possibly be analogous to the stamping of the feet seen in rabid horses.

These maniacal outbursts continued from admission at 3:45 p. m. until 11 p. m., when they turned to a delirious talking, which kept up until 6:30 a. m., at which time the patient went to sleep for two hours and a half. From 9 a. m. until 1 p. m. she was awake and lay quiet except when disturbed by the visits of the nurses or physicians, which would be the occasion for a fresh attack of mania and struggling. In spite of treatment she was rapidly growing weaker, and at 1 p. m. coma with hyperpyrexia set in until death at 3:45 p. m., just twenty-four hours after admission.

The temperature was 105 degrees or a little above, constantly until 1 p. m., when it rose to 107.6, the last record being 109.4 taken shortly before death. The pulse-rate did not fall below 180 at any time in the hospital, and one note of 200 was made.

Fig. 1.—Plexiform ganglion of a normal dog. This and the following illustrations are from drawings by Karin M. Hall.

The treatment adopted was restraint by a waistband which allowed the child to sit or lie down; and celluloid mitts, so that she could not accidentally scratch the nurses. The drugs used were morphin hypodermatically, 1/16 grain at 9 and 11 p. m. and 1, 3 and 5 a. m.; sodium bromid, 20 grains at 9 p. m.; veronal 5 grains at 11 p. m. and 1 a. m.; scopolamin 1/800 grain, hypodermatically at 1 and 9 a. m.; a digitalis preparation, hypodermatically, 6 minims at 1 and 5 a. m., and 10 minims at 9 and 11 a. m. and 1 and 3 p. m.

The diagnosis in this case rested mainly on the history of a dog-bite followed by an attack of fever and mania, and on the exclusion of other processes, such as pneumonia, meningitis, endocarditis and typhoid fever.

It is rare for the disease to develop after ninety days have passed. This case of seventeen days' incubation, approaches the shortest possible period, which is said to be twelve days.

Before giving the details of our findings in this case it might be well to consider briefly the etiology of the

condition. The statement credited to Aristotle (322-284 B. C.) that "lyssa (rabies) causes mania, and whatever is bitten [all] of those bitten go mad except man," is evidence that at that time the transmission of the disease to man was not known. But four centuries later opinion had changed, for Marcus Aurelius says, "To those bitten by mad dogs, water causes fear." From time to time this condition has been forcibly brought before the medical profession as well as the general public, measures have been taken by governments and municipalities to prevent the spread of the disease, and in the majority of instances when vigorous methods have been adopted and executed, the spread has been checked, thus showing the infectiousness of the disease. In England it has been stamped out, while in Germany the incidence is much reduced.

The specific cause of rabies has not been discovered. From time to time various bacteria have been put forward as the cause. They have been obtained from different organs, but from the bacteriologic point of view further study has invariably failed to satisfy the methods necessary in identifying a particular bacterium with the disease.

Not knowing the specific cause of rabies, the investigator tries to recognize some special change or changes in the tissues of the animal, which may have been brought about by the real but undiscovered cause, and which may be considered diagnostic. At various times changes have been described in the brain tissue which have been looked on as specific. The majority of these have been found on further investigation not characteristic.

Babes in 1892, through observations, stated that if by microscopic examination of the medulla oblongata and spinal cord a cellular accumulation was found in these structures, a diagnosis of rabies could be made. These cellular accumulations he described as "rabic tubercules."

Later, Nelis and Van Gehuchten following the work of Babes found proliferative changes in the walls of capillaries and lymph-spaces surrounding the larger nerve cells and ganglia. (Fig. 2). These changes consisted of a proliferation of the endothelial cells of these parts; with this there is shrinkage, chromatolysis and finally complete destruction of the nerve cell. For a time these histologic findings were considered diagnostic of rabies, and were even used in certain laboratories as a rapid diagnostic method of the disease. Later, however, similar changes were noted in conditions other than rabies.

More recently bodies within cells have been noted in certain parts of the brain which are considered as diagnostic of the condition. These bodies were first pointed out by Negri, who found them in the Purkinje cells of the hippocampus major, cerebellum and ganglia. The Negri bodies are oval or rounded in shape, and their size varies from very minute to about 25 microns in diameter or length. Negri bodies seen in the brain of the dog of the street vary from barely visible to about 8 microns in diameter. In rabbits used for experimental work the smallest forms are found, and in the cow dying from rabies the extraordinarily large forms are found. They stain best with the basic stains. Within these bodies are smaller, irregular, rounded bodies, which take the basic stains deeply, similar to other nuclear material. With this inner body there is usually some granular material around it. In larger forms of the Negri body, several such inner bodies may be seen which are usually small and deeply staining, and irregularly distributed. In another type several small inner bodies are distributed at the periphery of the Negri body in hernia-like sacs, which suggest pseudopods. (Fig. 3).

Studies by Williams and Lowden, who consider the Negri bodies as protozoa, and by Calkins, that they are a form of the amebas or rhizopods, suggest the possible position these bodies may have in the animal world. Until the life-cycle of this body has been completed, to determine whether it is a protozoon or rhizopod, it seems well not to accept conclusively that the body is actually a parasite, as it may be the result of changes brought about by the presence of some still unknown or unobserved organism.

Fig. 2.—Plexiform ganglion of a dog with rabies, showing well-marked Van Gehuchten and Nelis proliferation changes.

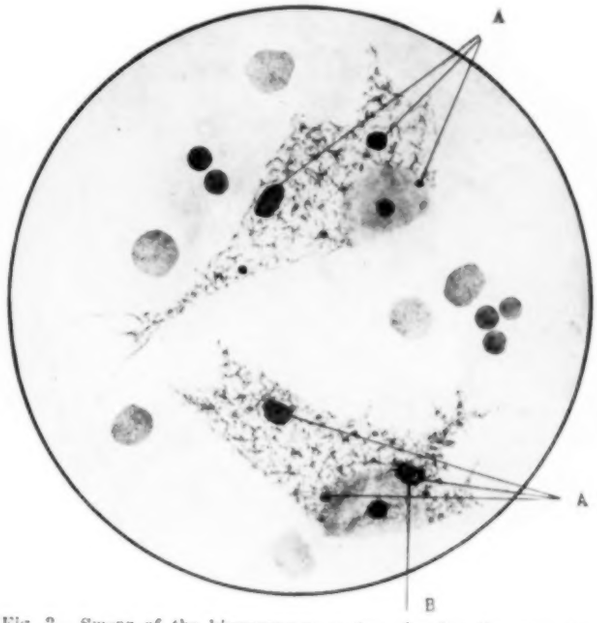

Fig. 3.—Smear of the hippocampus major, showing the presence of Negri bodies in two nerve-cells. *A, A*, Negri bodies; *B*, inner body of Negri body.

SUMMARY OF AUTOPSY REPORT

The lungs showed moderate congestion but no leukocytosis in the blood-vessels. There were a few hemorrhagic patches on the mucosa of the stomach. The liver and kidneys were congested and showed under the microscope moderate congestion and general cloudy swelling with small areas of early fatty degeneration but no leukocytosis in the blood-vessels. The spleen was congested, enlarged and soft, with the malpighian bodies and trabeculae not prominent; histologically the malpighian bodies were few in number and small, the central part in some having the appearance of amyloid degeneration. The dura was adherent posteriorly, the pia was congested and there was a very slight increase of fluid in the ventricles. On section, the cerebrum showed moderate congestion of the gray and white substance.

Our findings in the gross changes in the organs at autopsy, and the histologic changes in the various organs, with the exception of the brain, clearly indicate in this case an unusual process.

All the changes found in the organs were of a secondary nature and such as are frequently found from other pathologic causes. These morbid processes therefore are only indicative of some underlying condition, the gross and microscopic changes in the organs in this case not being characteristic of rabies alone; they are, however, findings similar to those reported in the majority of cases of hydrophobia or rabies.

The negative findings in the case are of particular interest to the general pathologist. Those who do not admit the existence of the condition known as rabies suggest that it may be a form of hysteria, or meningitis, or some toxemia, such as uremia and similar intoxications.

Hysteria as a pathologic condition can scarcely be considered here. It has no recognized pathology, and its symptomatology is better considered under another head. The minuter changes in the brain in this case, presently to be described, have not been noted as occurring in the condition known as hysteria.

Meningitis, however, should be carefully considered in relation to rabies. The typical case of meningitis, with the usual meningeal exudate, need not be considered here relative to our findings, because were it a typical case of meningitis, an exudate in some part of the meninges would have existed owing to the duration of the disease; but such was not the case; also the examination of the cerebrospinal fluid, obtained before death, as well as the smear preparations and cultures made at autopsy were all negative, thereby excluding meningitis.

In the rapidly fatal cases of meningitis, the result of a meningococcus infection, the brain may at the time of the autopsy be without an exudate; but in such cases edema and congestion are usually more marked, and the smears and cultures show the *Diplococcus intracellularis*.

Meningitis of tuberculous origin is not difficult to diagnose in the majority of cases, either from the finding of tubercle bacilli in the cerebrospinal fluid, obtained by puncture during life, or by the finding of tubercles in the meninges at autopsy. In some cases, however, both these methods fail to determine the diagnosis, when the finding of a tuberculous focus in some other organ is suggestive, or the histologic examination of the meninges may reveal a tuberculous condition.

In the case here reported no tubercules or tubercle bacilli were demonstrated in the stained specimen of the brain. One rabbit did not succumb to rabies, and was alive and well at the time when a tuberculous infection would have asserted itself in the animal, had the injected material been of a tuberculous nature.

EXAMINATION OF THE BRAIN

Lastly, the effect of a toxin, such as uremia, was not manifest from the findings elsewhere in a body. Therefore, with the exclusion of some general process as the cause of the condition, and of some local process, such as meningitis, the brain was carefully studied for evidence of rabies. For the purpose of this study, two methods of procedure were planned: 1. The histologic examination of the brain. Smear preparations were made from those portions of the brain which usually show definite microscopic changes. 2. Animal inoculations of portions of the brain substance made to reproduce the disease.

Microscopic Examination.—A portion of the cerebellum was removed for this purpose. Smear preparations and impressions were made on slides. In the former considerable difficulty was experienced in finding good nerve cells, and for this reason impressions were made in which better nerve cells were found, although limited in number. Only the Purkinje cells were searched for the Negri bodies. Most of the cells were clear in outline, lightly but sufficiently stained. Of the Purkinje cells carefully examined, only a few showed intracellular bodies well circumscribed and stained. These bodies stained with Van Gieson's stain—a combination of Loeffler's alkaline methylene-blue and basic fuchsin. Structures in the form of inner bodies were seen, which were large compared with the size of the average bodies found. Although the bodies were uniformly small and comparatively few, the structures and staining characteristics proved conclusively that the bodies within the Purkinje cells were Negri bodies.

Animal Inoculation Test.—The purpose of the test was to attempt to transmit the infection successfully and reproduce the disease experimentally in animals. Two rabbits were set aside and inoculated with an emulsion of the cerebellum as follows: The emulsion was made with a portion of the cerebellum, approximately weighing 1 gm., and 2 c.c. of normal salt solution; each rabbit was wrapped in a towel permitting the head to remain uncovered, and steps to inject a portion of the emulsion subdurally were proceeded with. One c.c. of a 2 per cent. solution of cocain was injected subcutaneously over the forehead as a local anesthetic. An incision was made parallel to the long axis of the head, less than 2 cm. in length, to one side of the median line, through the skin extending over the frontal bone. The soft tissues were spread apart and a small disk of bone removed with a trephine. The point of a curved needle was forced through the meninges, and several drops of the emulsion were left over the brain tissue. One suture was taken in the skin, and a covering of celloidin and cotton was placed over the wound.

The rabbits were kept under ordinary laboratory observation. On the twenty-fifth day following the inoculation, one rabbit was found dead. The brain of the rabbit was removed and in smear preparations made of portions of the cerebellum and hippocampus major, Negri bodies were readily demonstrated. From this it was concluded that the rabbit died of rabies, as a result of the inoculation of the emulsion of cerebellar tissue. The second rabbit was kept under observation for 120 days without having shown any symptoms. As the period of incubation of rabies in rabbits rarely exceeds 100 days, the conclusion was reached that the second rabbit had resisted infection. The animal inoculation test, however, in the development of rabies in one of the two rabbits conclusively proved the existence of the disease in the cerebellum of the child.

CONCLUSIONS

With the history of the disease extending through centuries, with sporadic cases as well as epidemics following the path of a rabid dog, with a symptom-complex

typical and characteristic following within a limited incubation period, with a fatal termination invariably following untreated cases, with a prophylactic treatment insuring a favorable prognosis, with a negative pathologic picture in the cases, and finally with microscopic lesions, which are constant, it would seem folly at least to continue in this age of preventive medicine to look on these cases as caused by other than some specific agent, infectious, and transmissible to human beings.

THE BRANCHED FORMS OF THE TUBERCLE BACILLUS, AND IMMUNITY TO TUBERCULOSIS

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Koch,[1] in 1882, announced that he had discovered a rod-shaped microorganism, either straight or curved and frequently beaded, which produced tuberculosis. This simple form was, I believe, accepted as a constant character until 1889, when I observed a different morphology[2] which at once suggested another cycle in the life of the tubercle bacillus of Koch. It was of the bovine type grown on a glycerinated agar medium and subjected to great variations of temperature. Instead of the well-known rod-shaped bacilli the field showed beautiful branched and budding forms, as shown in the copy from the original illustration (Fig. 1).

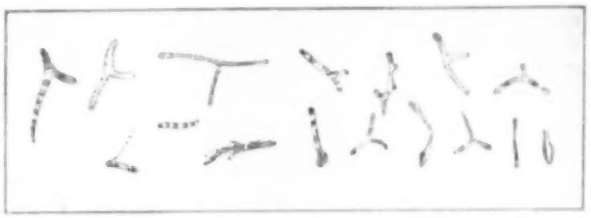

Fig. 1.—Branched forms of *B. tuberculosis*, bovine type (drawn from stained smears).

At that time I suggested the probability that we were dealing with involution forms and that they possessed a lower degree of virulence. This hypothesis was confirmed by von Metnischkoff,[3] who further contributed to the studies of the granular forms. These branched tubercle bacilli have frequently been found since that time in culture mediums. *In vivo* they have been found in the serums of rabbits which have had experimental injections made into the brain. During 1891 Allen J. Smith found them in human sputum.

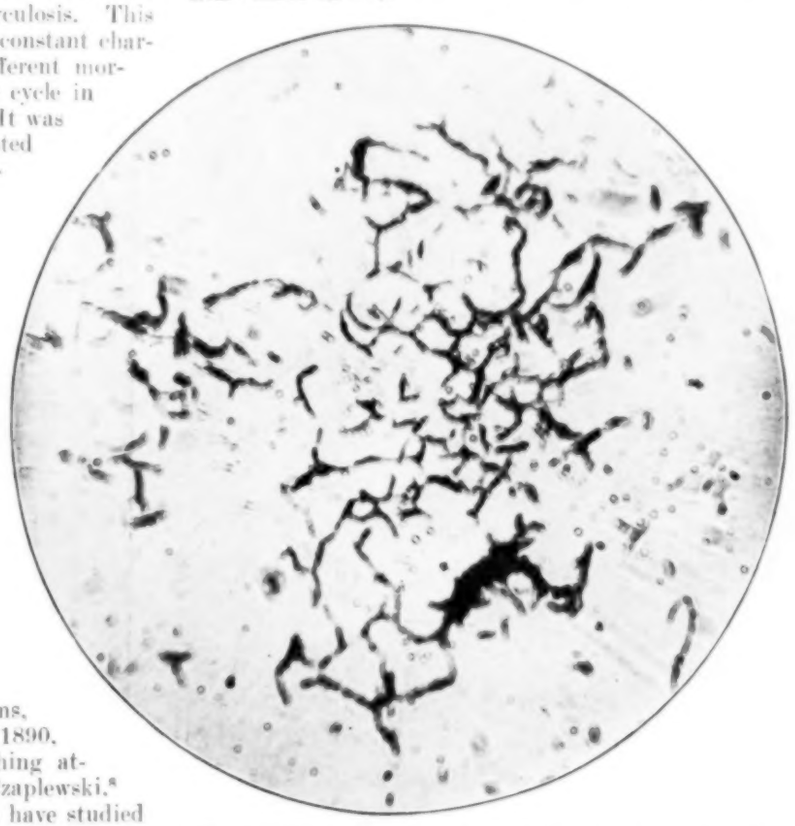

Fig. 2.—Microphotograph of branched forms, human type.

Maffucci[4] described thread-like forms, branching like the mycelia. Klein,[5] in 1890, described dichotomous and lateral branching attached at right angles. Koch,[6] Flugge,[7] Czaplewski,[8] Fischel,[9] Koppen Jones[10] and many others have studied the form changes resulting in granulation, vacuolization, the production of spore-like bodies and the various changes suggesting the relation to the trichomycetes.

The first observation was made on a chance culture; but since the discovery of these forms I have been able, at any time, to reproduce them on artificial mediums. In culture four weeks old, particularly in the presence of high temperatures, the branching constantly appears. The effect of high temperature has some confirmation in the fact that I found[11] the branched forms in 1892, when studying the avian type in the liver of the Mexican green jay (*Xanthoura luxosa*).

While the tubercle bacillus is mesophilic in the sense that it grows best at the optimum normal human temperature (37 C., 98.6 F.) the thermal death-point according to some authorities is 90 C. (194 F.), but in our work has been 70 C. (158 F.); this high limit of temperature gave opportunity to study the variation of form under a wide variation of thermal and nutritional conditions. The most favorable temperature for the full development of the involution forms, as shown in our laboratory work, is from 52 to 56 C. (125.6 to 132.8 F.). Dehydration would seem to be a factor in bringing about the change of form. This work has been carried out in the laboratories of the Pennsylvania State Department of Health under my direction by Drs. J. B. Rucker, Jr., and Alexander Garcia, and to-day they are able at will to produce branched forms in three

1. Koch: Berlin. klin. Wchnschr., 1882.
2. Dixon: Med. News, Oct. 19, 1889.
3. Von Metnischkoff: Virchows Arch. f. path. Anat., cxiii.
4. Maffucci: Ztschr. f. Hyg., B. xi.
5. Klein: Centralbl. f. Bakt., 1890, vii; 1892, xii.
6. Koch: Rep. Tenth Int. Med. Cong., Berlin, 1890.
7. Flugge: Die Mikroorganismen.
8. Czaplewski, E.: Die Untersuchung des Auswurfs auf Tuberkelbacillen, Jena, Gustav Fischer, 1891.
9. Fischel: Untersuchungen über die Morphologie und Biologie des Tuberkulose Erregers, Wien und Leipzig, 1893, Wilhelm Braumüller.
10. Jones, Koppen Centralbl f. Bakteriol. 1895.
11. Dixon: Proc. Acad. Nat. Sc., Philadelphia, Feb. 21, 1893.

selected cultures, namely, No. 1, bovine, No. 2, human and H-37 Saranac Lake human (Fig. 2).

Coincident with the ability to bring about these morphologic changes, a certain orderly development of the life-cycle has been observed in all three cultures. This metamorphosis occurs in the following successive changes: first, the development of branched forms which are acid-fast and show the presence of granulations suggesting the conidia of the higher molds; second, a non-acid-fast form corresponding to that described by Ferran;[12] third, a dust-like non-acid-fast material; fourth, a non-acid-fast "tuberculous mud," a substance without definite morphology, which in appearance corresponds to that produced by the drying of a drop of water on a cover-glass; fifth, a non-acid-fast form similar to the nocardial (streptothrix) form of higher fungi and, lastly, the appearance of an aspergillus-like form (Figs. 3 and 4).

Fig. 3.—Forms showing nodulation, human type.

Fig. 4.—Forms showing the production of conidia-like bodies, human type.

Attention has previously been called to the fact that the waxy envelope of the tubercle bacillus is in all probability the substance which gives to them their acid-fast characteristics. The development of non-acid-fast forms under the circumstances cited would indicate that this protective envelope has largely disappeared. In a series of experiments[13] undertaken to determine the effect of injections of the tubercle bacillus wax (when injected subcutaneously or intraperitoneally into laboratory animals) it is shown that it had a decided influence on the bile-duct and bronchiolar epithelium. The morphology and arrangement of the new cells, particularly in the glands of the larger bronchioles, show changes suggestive of carcinoma simplex, although by search one can find a well-formed complete basal membrane. This can be explained only on the basis of some attraction between the epithelium and the tubercle bacillus product. It is suggestive that the effect of tubercle bacillus wax is to produce an overgrowth of epithelial tissue, while the more marked effect in the production of an immunity is obtained by products which do not contain this wax. If this reasoning is correct the non-acid-fast types are products in the form which produces immunity and, possibly, with the least toxicity.

On the basis of the theory that the branched forms represented a life-cycle not only of morphologic change, but also of reduced virulence, I advanced the suggestion[2] that it might be possible to establish tolerance for the *Bacillus tuberculosis* either (1) by treating animals with a tuberculous filtrate or (2) by inoculating animals with bacilli, the virulence of which had been reduced by the above-described methods.

In accordance with the first hypothesis, I produced a watery extract[14] which produced a marked degree of immunity[15] in the laboratory animals and was improved as improved technic was adopted, resulting in the following methods:[16] The tubercle bacilli are grown on 4 per cent. glycerin veal broth for a period of from six to eight weeks at a temperature of 37.5 C. (99.3 F.). They are removed from the incubator and collected on hard filter-paper. The filtrates of glycerin broth on which they are grown are discarded. An equal quantity, by weight, of tubercle bacilli of the bovine and human type is used. The mass of organisms is partially dried of the excess of moisture by placing between two sterile

12. Ferran: Wien. klin. Wchnschr., 1898, No. 28.
13. Dixon, S. G., Smith, A. J., and Fox, H.: Pennsylvania Health Bull., June, 1911, No. 24; Effect of Tubercle Products on Epithelium, THE JOURNAL A. M. A., Sept. 2, 1911, p. 800.
14. Dixon: Med. News, Philadelphia, Jan. 17, 1891.
15. Dixon: Med. and Surg. Rep., Sept. 6, 1890; Second Ann. Rep. Henry Phipps Inst., Philadelphia, 1904. Lauder-Brunton, Sir T.: Nature, Nov. 20, 1890.
16. Pennsylvania Health Bull., October, 1911, No. 24.

filter-papers and afterward placed in a dish in the incubator for from twenty-four to forty-eight hours. The dried organisms are then washed in an excess of ether, which is allowed to act until it has removed all of the water and glycerin. The organisms are then subjected to an excess of fresh ether and washed in this for six hours to soften the wax of the bacilli. This fat separates so that it collects at the bottom of the vessel and is removed by a Pasteur pipet. After the second addition of ether is removed, the mass is allowed to dry until no ether odor is perceptible. After the mass of tubercle bacilli has been thoroughly dried, it is ground in a mortar and suspended in physiologic salt solution in the proportion of 1 part of the ground mass to 5 parts of an 8 per cent. salt solution. This suspension is carried in a shaking-machine for from eight to ten hours and then allowed to stand for several days at room temperature. It is finally passed through impervious bacteria filters several times and the filtrate is examined microscopically, bacteriologically and physiologically. Culture-tests are made to determine its freedom from contaminating organisms, and guinea-pigs are inoculated to ascertain that it contains no living tubercle bacilli. One c.c. of this extract represents 0.5 gm. of the organisms, and is known as the stock solution from which serial dilutions are made. This solution is sterile, though a preservative of 0.5 per cent. of phenol (carbolic acid) is added to prevent any subsequent contamination. This extract is put up in syringes in a series of dilutions so that the doses may be increased as deemed advisable. Small repeated doses of this extract when injected into normal guinea-pigs caused no effect on their temperature, weight or general condition.

In addition to the extract a suspension of dead tubercle bacilli was prepared which has been found from careful use to be of value in certain selected cases, which are more tolerant to the toxins of the microorganism.

The preparation is a suspension in physiologic salt solution of tubercle bacilli which have been degreased by prolonged treatment with alcohol and ether. The tubercle bacilli are grown on 4 per cent. glycerin veal broth for from six to eight weeks at a temperature of 37.5 C. After the cultures are removed from the incubator, the tubercle bacilli are killed by subjecting them to steam sterilization for one hour. The tubercle bacilli are then collected on hard filter-paper and the filtrate is discarded. An equal quantity, by weight, of tubercle bacilli of the human and bovine type is used. This bacillary mass is dried of the excess moisture between layers of sterile filter-paper and afterward placed in the incubator at 37.5 C. for twenty-four hours. It is then dried in a vacuum desiccator over either sulphuric acid or calcium chlorid, until the mass has become dry and brittle, exhibiting a brownish color. The dried tubercle bacilli are then disintegrated by grinding in a mortar and afterward placed in Soxhlet's apparatus. The first extraction is done with absolute alcohol and is continued until the brown color of the distillate has disappeared, which requires from two to four hours. The alcohol is then replaced by ether and the extraction continued until the ethereal distillate is practically clear. The extraction by ether necessary to bring about a clear distillate requires from eight to ten days of ten hours each. When the extraction is complete, the mass of tubercle bacilli is dried twenty-four hours at 45 C. (113 F.). The resulting mass of tubercle bacilli consists of dirty, yellowish-gray granules, which break up easily into small particles. These particles are not soluble in water, salt solution, alcohol or ether. They are ground up into a fine powder in a porcelain ball mill. Definite quantities of the tubercle bacilli powder are inoculated into normal guinea-pigs to determine its freedom from living tubercle bacilli. Suspensions are then prepared of the degreased ground bacilli in physiologic salt solution. These suspensions are proved to be sterile by microscopic and cultural examinations. As a further precaution against subsequent contamination, 0.5 per cent. of phenol is added. The suspensions are put up in carefully selected strengths in syringes, ready for injection.

The clinical results of the use of the extract (T. B. E.) were recently reported by Francine and Hartz,[17] and the use of both extract (T. B. E.) and the suspension (T. B. S.) was reported by Johnson and Berry.[18] In accordance with the second hypothesis, experiments have been repeatedly made on lower animals in injecting the involution forms, particularly into guinea-pigs. Every result indicates the development of marked resistance to lethal doses of virulent tubercle bacilli. More recently we have injected emulsion of salt solution containing as high as 20 mg. of the living forms into guinea-pigs with no evidence of either a local or general reaction at the end of seven days. The injection of 1 mg. of the original culture from which the involution forms are produced shows local and systemic reaction within forty-eight hours, with the production of generalized tuberculosis and death usually at the end of six weeks.

As a result of these observations it is apparent that we have shown the tubercle bacillus to have a cycle of life not previously recognized, with a morphology suggesting the higher molds. It is now our endeavor to find a culture medium on which, under suitable temperature conditions, tubercle bacilli will reproduce the rod-shaped forms.

In the branched forms we have a reduced virulence and have produced a marked degree of immunity in lower animals with branched forms of the living bacilli.

These facts are in accordance with the results attained in the clinical use of the watery extract and the suspension of degreased bacilli, which results, obtained to-day, seem to confirm those of 1889.

THE FINDING OF ACID-FAST BACILLI IN THE CIRCULATING BLOOD *

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That tubercle bacilli occur in the blood-stream in advanced stages and miliary forms of tuberculosis has long been an established fact. The theory that tuberculosis is primarily a bacteriemia dates back to the work of Rosenberger,[1] who claimed to have found tubercle bacilli in the blood-stream in all cases of tuberculosis; this he demonstrated in tuberculous pharyngitis, laryngitis, lupus, bone and pulmonary tuberculosis, and other forms. His work was confirmed by Forseyth,[2] Petty and Mendenhall[3] and others.

Brem[4] cast doubt on Rosenberger's findings by reporting the finding of acid-fast bacilli in distilled water. These he called

17. Francine and Hartz: Trans. Col. of Phys., Philadelphia, January, 1913; Results with Tuberculin (Dixon's) in Advanced Chronic Ambulatory Tuberculosis, THE JOURNAL A. M. A., March 8, 1913, p. 717.

18. Johnson and Berry: Report of Commr. of Health, Pennsylvania, 1911; Dept. of Health Bulletin, November, 1912, No. 40.

*From the Laboratory, Edward Sanatorium, Naperville, Ill.

1. Rosenberger: Am. Jour. Med. Sc., February, 1909; New York Med. Jour., June, 1909.

2. Forseyth: Brit. Med. Jour., April, 1909.

3. Petty, O. H. and Mendenhall, A. M.: Tubercle Bacilli in the Blood, THE JOURNAL A. M. A., Sept. 11, 1909, p. 867.

4. Brem, Walter V.: Investigation of Blood for Tubercle Bacilli, THE JOURNAL A. M. A., Sept. 18, 1909, p. 909.

Bacillus citratis and they were supposed to be identical with the acid-fast bacilli found by Rosenberger.

Recently Kurashigi[5] using the Kurashigi-Schnitter method, reported finding tubercle bacilli in all cases of tuberculosis, using controls in all tests. This work has been confirmed by Kennerknecht and other German investigators.

The Kurashigi-Schnitter method is as follows:—Draw 1 c.c. of blood from one of the arm veins; add this to a tube containing 5 c.c. of a 3 per cent. solution of acetic acid and allow to stand one-half to one hour; centrifugalize one-half hour; pour off the top liquid; dissolve the sediment in 5 c.c. of concentrated antiformin; when dissolved, add 5 c.c. of absolute alcohol; then centrifugalize one-half hour; decant this supernatant liquid and wash the snow-white sediment with distilled water; centrifugalize and spread the sediment on clean glass slides and stain. The average time spent in searching slides was about one-half to two and a half hours. The bacilli when found usually occurred in loose clumps.

Following this method we have examined at the Edward Sanatorium, twenty-six incipient, twenty moderately advanced and four far-advanced cases of pulmonary tuberculosis, finding acid-fast bacilli morphologically identical with the tubercle bacilli in all of them. We were also able to demonstrate the acid-fast bacilli in five apparently normal individuals.

We examined the water used for acid-fast bacilli. The tests were made by adding a small amount of albumin to the test-tube containing the water, thoroughly shaken, then centrifugalizing one-half to one and a half hours and examining the sediment. The results were uniformly negative.

Other tests were made by adding a small loopful of tubercle bacilli to a test-tube containing 1 c.c. of water and a small amount of albumin and carried through the Kurashigi-Schnitter method. These tests showed a concentration of the tubercle bacilli in clumps. To eliminate a possibility of a crystal we made a series of tests, using a combination of acetic acid, alcohol and albumin—acetic acid and solution of alkalies and antiformin. In none of these tests were we able to demonstrate acid-fast crystals similar to those found in the blood examination.

We wish to thank Dr. Theodore B. Sachs, medical director of the sanatorium, for the opportunity of studying these cases.

Therapeutics

DISTURBANCES OF THE HEART

(Concluded from page 903)

THE HEART IN PNEUMONIA

As pneumonia heads the list of the causes of death in this country, and as the heart fails so quickly, sometimes almost in the beginning, in pneumonia, a special discussion of the management of the heart in this disease is justifiable.

Acute lobar pneumonia may kill a patient in twenty-four or forty-eight hours; he may live for a week and die of heart failure or toxemia, or he may live for several weeks and die of cardiac weakness. If he has double pneumonia he may die almost of suffocation. It is to-day just as frequent to see a slowly developing and slowly resolving pneumonia as to see one of the sthenic type that attacks one lobe with a rush, has a crisis in seven, eight or nine days, and then a rapid resolution. In fact the asthenic type, in which different parts of the lung are involved but not necessarily confined to or even equivalent to one lobe, is perhaps the most frequent form of pneumonia.

The serious acute congestion of the lung in sthenic pneumonia in a full-blooded, sturdy person with high tension pulse may be relieved by cardiac sedatives, vasodilators, brisk purging, or by the relaxing effect of antipyretics. Venesection is often the best treatment.

When the sputum almost from the first is tinged with venous blood, or even when the sputum is very bloody, of the prune-juice variety, the heart is in serious trouble, and the right ventricle has generally become weak and possibly dilated. The heart may have been diseased and therefore is unable to overcome the pressure in the lungs during the congestion and consolidation.

There is a great difference in the belief of clinicians as to the best treatment for this condition. It would seem to be a positive indication for digitalis, and good-sized doses of digitalis given correctly, provided always that the preparation of the drug used is active, is good and, many times, efficient treatment. Small doses of strychnin may be of advantage, and camphor may be of value. In the condition described, however, reliance should be placed on digitalis. Later in the disease when the heart begins to fail, perhaps the cause is a myocarditis. In this condition digitalis would not work so well and might do harm. It is quite possible that the difference between digitalis success and digitalis nonsuccess or harm may be as to whether or not a myocarditis is present.

If the expectoration is not of the prune-juice variety and is not more than normally bloody, or in other words, typically pneumonic, and the heart begins to fail, especially if there is no great amount of consolidation, the left ventricle is in trouble as much as the right, if not more. In this case all of the means above described for the prevention of any dilatation of the heart will be means of preventing dilatation from the pneumonia, if possible. The treatment advisable for this gradually failing heart is camphor; strychnin in not too large doses, at the most 1/30 grain hypodermatically once in six hours; many times ergot intramuscularly once in six hours for two or three doses and then once in twelve hours; plenty of fresh air, or perhaps the inhalation of oxygen. Oxygen does not cure pneumonia, but may relieve a dyspnea and aid a heart until other drugs have time to act.

If there is insomnia, morphin in small doses will not only cause sleep, but will not hurt the heart. In the morning hours of the day the value of caffein as a cardiac stimulant and vasocontractor, either in the form of caffein or as black coffee, should be remembered. Strophanthin may be given hypodermatically. One of the greatest cares in the treatment of heart failure in pneumonia should be not to give too many drugs or to do too much.

SHOCK

The treatment of shock will probably always be unsatisfactory as the cause is so varied, and, although circulatory prostration and vasomotor paresis always constitute the acute condition, the physiologic health of the heart and blood-vessels is so varied. The patient in shock has low temperature, low blood-pressure, and a pulse either rapid or slow, but excessively feeble; the face is pale, the surface of the body cold, and there is more or less clammy perspiration; there may be dyspnea and cardiac anxiety, or the patient may hardly breathe.

An acute cause, as terrible pain or hemorrhage, must of course be stopped immediately. There is more or less anemia of the brain, and therefore the legs and perhaps the lower part of the body should be elevated. It may even be wise to drive the blood from the legs by Esmarch bandages into the rest of the circulation. As there is

5. Brauer: Beitr. z. Klin. d. Tuberk., 1912, xxiii, No. 2.

always more or less paresis and dilatation of the large veins of the splanchnic system, a tight bandage about the abdomen is of great advantage in raising the blood-pressure to the safety mark.

Strophanthin, given hypodermatically, is valuable as a quick restorative of the heart. Digitalis is so slow that it is of little value in an emergency. Camphor hypodermatically, and hot liquids (nothing is better than black coffee) given by the mouth, are valuable remedies. The camphor may be repeated frequently. Strychnin, the long-used stimulant, should generally be given, but in not too large doses and not too frequently repeated; 1/30 grain hypodermatically is generally a large enough dose; this dose may be repeated in three or four hours, but should ordinarily not be given oftener than once in six hours. An aseptic preparation of ergot given intramuscularly is most efficient in raising the blood-pressure and aiding the heart. Aromatic spirit of ammonia, if at hand, may be the first remedy tried, and one dose of brandy or whisky may do no harm. Alcohol, however, should not be pushed.

A most important procedure in all kinds of shock is to surround the patient with dry heat, hot-water bags, and hot flannels; gentle friction of the arms and legs, unless the patient is too exhausted, may be of benefit. A hot-water bag to the heart is always a stimulant. Sometimes friction over the base of the heart in the region of the auricles is of benefit.

If the collapse is not acute and there is gradual profound prostration, or if the patient is improved but still in a serious condition of shock, too energetic measures must not be used; neither should too many drugs be administered, or drugs in too large doses. Absolute quiet and the administration of liquid nourishment in but small amounts at a time are essential.

The hypodermatic administration of epinephrin solutions, 1:10,000, or solutions of pituitary extract, 1:10,000, should be considered; they are often valuable.

If the shock occurs in ether or chloroform anesthesia, the vasopressor stimulating effect of inhalations of carbon dioxid gas may be considered, as advised by Henderson.[1]

If the shock is due to hemorrhage and the hemorrhage has ceased, a transfusion of physiologic saline solution is generally indicated. Sometimes transfusion of blood under the same conditions would be still better. Rarely is transfusion indicated in shock from other causes; it often adds to the difficulty rather than improves it. Occasionally if shock is decided to be due to a toxemia, the toxins may be diluted by the withdrawal of a small amount of blood and the transfusion of an equal amount of saline solution.

ACUTE DILATATION OF THE STOMACH

This condition is not well understood, nor is its frequency known, but not a few instances of shock are due to dilatation of this organ. The shock to the heart may be a reflex one through the pneumogastric nerves. It perhaps not infrequently occurs after abdominal operations and is more or less serious, the symptoms being persistent vomiting, upper abdominal distention and collapse. The vomiting is of bloody or coffee-ground material.

Sometimes the ordinary treatment of the collapse and washing out the stomach save the patient; at other times the patient with this series of symptoms dies in spite of all treatment.

It has been shown that acute dilatation of the stomach may occur in pneumonia, and may be one of the causes of cardiac collapse in pneumonia.

When the condition is diagnosed the treatment would be that of shock plus an abdominal bandage and washing out the stomach with warm solutions, if the patient is not too collapsed, or at any rate the frequent administration of hot water in small quantities.

Sometimes when the stomach is dilated the pylorus becomes insufficient, and bile regurgitates into the stomach, and is a cause of the profound nausea and vomiting and the subsequent collapse. In these cases not infrequently small doses of dilute hydrochloric acid seem to aid the pylorus to maintain its normal contraction, the regurgitation of bile does not take place, and the stomach may soon acquire a more normal muscle tone. Not infrequently when a stomach is in this kind of trouble and all foods are rejected, and yet the patient seriously needs nourishment, a warm, thin cereal, as oatmeal gruel or something similar, may be retained. Such patients, as has been repeatedly stated, need starch as soon as possible, lest an acidosis develop.

In these vomiting and collapse cases the hypodermatic administration of morphin and atropin will not only stop the vomiting, at least temporarily, but will give necessary rest. The dose of morphin need not be large, and the atropin may prevent nausea from the drug.

ANESTHESIA IN HEART DISEASE

While no physician likes to give an anesthetic to a patient who has valvular disease of the heart, and no surgeon cares to operate on such a patient unless operation is absolutely necessary, still in valvular disease with good compensation the prognosis of either ether or chloroform narcosis is good.

When there are evidences of chronic myocarditis or a history of broken compensation, and the borderline of compensation and dilatation is very narrow, or when there is arteriosclerosis, the danger from an anesthetic and an operation is much greater; it may be serious in fact, and the decision must be made whether the operation is absolutely necessary or not. Under any circumstances it is understood that the anesthetist must be an expert, as there can be no carelessness and nothing but the best of judgment in giving anesthesia in cardiac defect.

The anesthetic to select is a subject for careful decision, as one cannot assert which anesthetic is the best. While chloroform seems occasionally to cause a fatty degeneration of the heart, or if given too rapidly at first may cause sudden death, especially in cardiac weakness, ether has its disadvantages, owing to the increased tension (especially if there is likely to be much muscular or cerebral excitement), and the greater amount of ether that must be given, with the attendant danger to the kidneys, which may have been disturbed from the cardiac conditions. Generally, however, the better method is perhaps to administer first chloroform to the point of producing sleep and then to change to ether, the first mild chloroform narcosis preventing the ether from causing acute stimulation, and ether being better for the operation as it is more of a stimulant.

Some believe that it is better to administer morphin, with perhaps atropin hypodermatically before the anesthesia, and then to use ether. Nitrous oxid gas would be contra-indicated as tending to increase arterial pressure, and therefore endanger a damaged heart; it is a serious danger to damaged blood-vessels.

THE END

1. Henderson: Am. Jour. Physiol., February and April, 1909.

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SATURDAY, MARCH 29, 1913

THE PORPHYRINS IN PATHOLOGY

The chemist Nencki, some time before his death, succeeded in preparing from hematin, the ferruginous fragment of the blood-pigment, two crystalline compounds which were designated as "hematoporphyrin" and "mesoporphyrin," respectively, and showed a close similarity by the spectroscopic test, the method of examination so commonly applied to hemoglobin derivatives. Subsequent investigation has demonstrated, however, that the two porphyrins, alike though they may be in their optical behavior, are chemically distinct compounds. Hematoporphyrin owes its origin to a process involving oxidation; mesoporphyrin requires reduction reactions for its production; and perhaps the possibility of still other iron-free hematin derivatives is not even here exhausted.

Under a variety of pathologic conditions there is found in the urine in noteworthy amounts a substance which is ordinarily spoken of as hematoporphyrin. Hematoporphyrinuria is familiar as a symptom of poisoning with sulphonal and trional, for example. Inasmuch as the conventional way of identifying this pathologic urine pigment is by means of spectroscopic examination, and the isolation of the so-called urinary hematoporphyrin in any reasonable degree of chemical purity has not yet been satisfactorily accomplished, it appears difficult to decide (in view of their spectroscopic similarity) as to which one of the now known distinct porphyrins actually constitutes that substance with which the clinician is familiar.

The final answer to the problem can perhaps not be given until the urinary porphyrin is actually isolated as such. Certain recently discovered biologic properties of the porphyrins may, however, throw light on the question. Tappeiner and his pupils in Munich have shown that by means of so-called photodynamic substances, among which fluorescin may be cited in illustration, it is possible to sensitize organisms to the harmful action of light.

Hausmann has extended this work to show that chlorophyl and the related substance hematoporphyrin prepared from the blood-pigment may exert a similar photodynamic influence.[1] Red blood-corpuscles, for example, are hemolyzed by hematoporphyrin only in the light. White mice, injected with small quantities of the same porphyrin, remain normal for weeks when kept in the dark. Exposed to the light, however, they quickly develop characteristic symptoms of intoxication accompanied by a dread of the light, dyspnea, inflammation and swelling of the ears and edema of the skin, resulting in speedy death.

In Friedrich Müller's clinic at Munich, Fischer and Meyer-Betz[2] have investigated the photosensitizing properties of the two porphyrins prepared in a high state of purity. They were able to verify Hausmann's observations on the photodynamic properties of hematoporphyrin in equally striking experiments. The contrast between injected animals in the dark and in the sunlight belongs among the spectacular and almost mysterious phenomena which the biologic sciences furnish so frequently. Pure mesoporphyrin, on the other hand, is apparently devoid of all photosensitizing influence, though it appears to exert a slight toxic action. Porphyrin prepared from the blood derivative hemin by reduction and subsequent oxidation — a process quite within the possibilities conceivable for the animal organism — behaved like the hematoporphyrin.

The existence of specific compounds which are known to arise in the organism under certain pathologic conditions, and which can exert such a marked sensitizing power toward light, has more than a passing medical interest. A skin affection sometimes designated as "hydroa aestiva" and connected with the strong action of sunlight often shows an association of the exanthem with the appearance of hematoporphyrin in the urine.[3] Rabbits in which hematoporphyrinuria has been developed by sulphonal respond with skin affections to intense illumination.[4] Other cases attended with porphyrin in the urine, for instance, syphilis of the liver, have been reported to develop necroses in the portions of the body exposed to light. Numerous other illustrations of real or alleged hypersensitiveness to light, as they have been reported in the curious response of certain individuals to buckwheat ingestion and in pellagrins, might be cited here; but the discussion of this interesting and little-explored domain would lead us too far afield.

HEALTH OF ALASKAN NATIVES

We have previously noted[5] the poor conditions of health and sanitation obtaining among the natives of Alaska. This territory is one-fifth as large as the entire United States and presents features of inaccessibility, climate and lack of means of communication which make medical relief work exceedingly difficult. In 1900 the

1. Hausmann, W.: Biochem. Ztschr., 1908, xiv, 275; xv, 12; 1909, xvi, 294; 1910, xxx, 276.
2. Fischer, H., and Meyer-Betz, F.: Zur Kenntnis der Porphyrinbildung. Ztschr. f. physiol. Chem., 1912, lxxxii, 96.
3. Ehrmann, S.: Arch. f. Dermat. u. Syph., 1909, xcvii, 83.
4. Perutz, A.: Wien. med. Wchnschr., 1910, xxiii, 122.
5. Health Conditions in Alaska, editorial, THE JOURNAL A. M. A., March 9, 1912, p. 704.

census figures placed the native population of Alaska at 29,536, while in 1910 it had fallen to 25,331, a decrease of 4,205, or 14.5 per cent. Surgeon M. H. Foster of the Public Health Service reported, Aug. 11, 1911, that at Sitka the fairly reliable statistics of the churches placed the annual birth-rate for a period of five years and seven months at 72.3 per thousand, and the annual death-rate for the same period at 85.4 per thousand, which gives a decrease of 13 per thousand. In the year 1912 the birth-rate was 24 per thousand and the death-rate 29.3, a decrease of but 5.3 per thousand in population. Yet in spite of this evident improvement in Sitka, which has probably resulted from the organized efforts of the Bureau of Education, health conditions among the Alaskan natives at large are far from satisfactory.

On request of the Secretary of the Interior, Passed Assistant Surgeon Emil Krulish of the federal Public Health Service was detailed to investigate the health and sanitation of the Alaskans under the Commissioner of Education. Dr. Krulish spent from April to November, 1912, in this work, and his observations and recommendations are incorporated in a report to the Commissioner of Education under date of Jan. 22, 1913, this report being forwarded to the Secretary of the Interior, Jan. 25, 1913. The report fully corroborates the findings of Surgeon Foster, on which we have commented editorially.[1] The incidence of disease is found to vary somewhat in different parts of Alaska, syphilis being most prevalent in the southwestern part, eye diseases in the southeast and pulmonary tuberculosis among the Eskimos. These are the most destructive and dangerous forms of disease among the natives. Dr. Krulish found 23 per cent. of the natives in southern Alaska to be suffering from some form of eye trouble, whereas only 6 per cent. of the Eskimos were so affected. In southwestern Alaska 13 per cent. of the natives suffered from trachoma. The report estimates that 80 per cent. of the blindness and partial loss of vision among the natives could have been prevented by appropriate treatment in the early stages.

The most serious menace is tuberculosis, which, "if not eradicated in the near future, will exterminate the native population of Alaska in the course of sixty or seventy years." The disease is present in all forms, especially in the pulmonary, osseous and glandular types. Several cases of spinal tuberculosis were observed, followed by paralysis. Dr. Krulish places the degree of tuberculous infection among the native population at 15 per cent. In 7 per cent. it is in an active stage. The principal reasons for this wide infection lie in the insanitary housing conditions and personal habits of the natives. The houses are poorly ventilated and overcrowded. The natives commonly spit on the floor, use a common towel and "drink from the same tea-pot spout." These conditions also contribute largely to the spread of syphilis and trachoma.

Dr. Krulish recommends the establishment of a system of hospitals for the trachomatous, syphilitic and tuberculous, and the employment of field nurses for the actual care of patients in their homes and to instruct the natives in sanitary and health matters. The present medical relief work in Alaska should be extended and put on a permanent basis. The estimated expense for the erection, equipment and maintenance of a chain of hospitals, for salaries of physicians, nurses and attendants, traveling expenses, drugs and supplies for the first year would be about $274,600, and the future maintenance of this service would require about $160,000 annually. An appropriation of at least $125,000 is necessary to begin the work on an adequate basis.

It is certainly poor economy for the government to maintain schools and no hospitals. The health conditions will become progressively worse if nothing is done, and it is to be hoped that immediate and adequate provision will be made by Congress for this important work.

CARBON DIOXID AND APNEA

Physiologic anomalies not infrequently furnish the clue to the explanation of obscure processes in the organism. We have at various times referred to the probable importance of carbon dioxid as a regulator of physiologic functions, particularly in relation to respiration and the circulation.[1] Concordant with the generally accepted view of the rôle of carbon dioxid is the well-known fact that forced breathing is usually followed by a period of apnea of a duration depending on the extent to which the forced breathing has been performed.

The obvious explanation of this phenomenon is that with the sweeping out of the carbon dioxid from the circulation through the enhanced lung ventilation, the content of the blood in this stimulant to the respiratory center is reduced below the threshold of concentration at which it is effective there. Apnea follows until this respiratory "hormone" has again accumulated in sufficient amount to call for better elimination. Incidentally it has been noted that this apneic response does not occur in some persons.

Recently Boothby[2] has studied an individual presenting the apparently anomalous phenomenon, not merely of the absence of apnea, but even of a natural hyperpnea succeeding forced breathing. How are these instances to be explained on the current hypothesis which assigns so much prominence to the carbon dioxid content of the circulation? Shall we assume that the respiratory functions are maintained through the activity of some other stimulus here, or is the effective carbon dioxid content of the blood conserved in an unexplained manner? Boothby believes that there is the usual loss of carbon dioxid in the forced breathing of these unique subjects,

1. Compare Carbon Dioxid and the Circulation, THE JOURNAL A. M. A., Feb. 8, 1913, p. 45.
2. Boothby, W. M.: Absence of Apnea After Forced Breathing, Jour. Physiol., 1912, xiv, 328.

and that despite the absence of apnea it is made up again within a few minutes, though not so rapidly as when apnea occurs. He ventures the hypothesis that the absence of apnea after forced breathing is probably due to a compensating diminution of the circulation through the respiratory center, in consequence of which the gas tensions in the center are still capable of exciting it. More specifically, as soon as there is an appreciable decrease in the carbon dioxid pressure in the arterial blood the arterioles and capillaries respond by contracting in an attempt to diminish the volume of blood passing through areas under their control. Furthermore, in the absence of better information regarding the mechanism by which the venous supply of the heart is regulated, it might be supposed that this is dependent in part on the carbon dioxid content of the venous blood. In that case, as Boothby suggests, forced breathing might bring about a marked diminution in the output of the heart. Accordingly it would follow that in the anomalous cases referred to above a decreased circulation in the central nervous system in general and in the respiratory center in particular maintains the carbon dioxid tension at near its normal level despite the forced breathing. The retarded circulation would further bring about a condition of oxygen want with the consequent production of products of deficient oxygenation such as lactic acid. These acid derivatives, in conjunction with the carbon dioxid, could keep the respiratory center excited; and thus the phenomena of hyperpnea after forced breathing without apnea could be understood. The most interesting feature in these newer observations is the suggestion that the circulatory system may cooperate in some cases in an unexpected degree and manner to maintain a function of the respiratory center. The assumed influence of the carbon dioxid on the blood-vessels themselves will, however, bear further investigation.

THE IODIN CONTENT OF THE THYROID GLAND

During the past decade there has been an earnest and laudable effort among those interested in the use of drugs to secure some efficient standardization of the products which enter into common use in medicine. When possible and feasible, crude preparations have been replaced by isolated "principles," particularly in the application of the naturally occurring products that yield alkaloids. In other cases, as in the dispensing of digitalis extracts, for example, much time has been devoted to the testing and introduction of suitable methods of measuring the potency of the marketed materials so as to furnish a reliable tincture or fluidextract, the therapeutic effect of which might in some reasonable degree be anticipated and relied on. The standardization of the animal-organ extracts which have come so widely into use is equally desirable, but the more difficult of accomplishment because the active substances (with the exception of the adrenal constituent) are scarcely known; and a precise pharmacologic response of the organism to their administration is equally difficult to recognize. Hence it is that in many cases the clinician has been compelled to content himself with prescribing certain portions of the gland used, remaining in ignorance as to the real dosage involved except in so far as palpable results manifested themselves in the case of individual products. Constancy of composition and physiologic effect could scarcely be expected; and the manufacturer has been quite as helpless as the physician in the attempt to secure that uniformity of quantity and quality which insures dependable medication.

Some hope of fixing a standard for the use of thyroid in medicine has been warranted by the apparent correlation of the iodin content of the thyroid gland with that constituent which is assumed to bring about the reactions for which the product is employed. Tentatively a proposed iodin content of 0.2 per cent. has been adopted. If the numerous published analyses of the thyroid are reviewed, one is impressed with the wide variations in relation to species, locality and other factors which are likely to come into play. Obviously the first desiderata are sufficiently extensive and reliable statistics in regard to the actual facts respecting iodin and the thyroids. It has been the aim of the Hygienic Laboratory of the Public Health Service, working in conjunction with some of our American manufacturers in that cooperative spirit which makes for real progress, to supply the missing data.[1] Material was prepared from thyroid glands obtained from animals shipped to the Union Stock Yards in Chicago from practically all parts of the United States except the Eastern and Southeastern states. In this way it was hoped to eliminate local influences to a large extent. That these may easily come into play will be apparent when the regional occurrence of goiter in animals as well as man is brought to mind.

The investigation of Seidell and Fenger thus undertaken particularly to ascertain the extent of the variation in the iodin content of composite samples of animals used as food by man—products accordingly available on a suitable commercial basis—led to an unexpected finding. It was shown that a marked seasonal variation exists in the percentage of iodin present in the healthy normal-sized thyroid glands of the sheep, beef and hog. There is in general about three times as much iodin present in the glands in the months between June and November as in the months between December and May. A seasonal variation in the size of the fresh glands was observed in the case of the sheep and beef, but not with the hog. The glands were found to be larger during the months in which the lower iodin content was observed.

A particularly important outcome of this study was the demonstration that a continued restriction of the source of pharmacopeial thyroid to the glands of sheep would make practically impossible the production in the

1. Seidell, A., and Fenger, F.: Seasonal Variation in the Iodin Value of the Thyroid Gland, Jour. Biol. Chem., 1913, xiii, 517.

United States of a drug of 0.2 per cent iodin content for all but a short period of the year. It is now evident that the maintenance of a standard of this sort will require the use of glands other than those of the sheep, and in addition, the mixing of the product obtained at the high and low seasons of the year.

THE RATTLESNAKE-VENOM TREATMENT OF EPILEPSY

The fashion of using biologic products of extreme toxic potency is on us. It seems unnecessary to have these products accurately standardized, or to have their employment in human beings preceded by careful animal experimentation in which both the immediate and remote effects of such toxication can be determined. So long as a profound "reaction" is produced the end in view seems to have been attained, for by that reaction, if one may credit the enthusiastic reports of the advocates of these new and heroic therapeutic adventures, beneficial results in diseases otherwise practically incurable, epilepsy for instance, seem attainable. Curiously, however, these new fields for the employment of biologic toxins seem to require preliminary exploitation through the agency of the public press; and with the growing tendency of lay publications to magnify the sensational at the expense of the scientifically exact in alleged discoveries in medicine, there is little wonder that a treatment like the injection of rattlesnake-venom for epilepsy should have excited a lively and exaggerated interest.

An epileptic in Texas was bitten by a rattlesnake; he escaped the secondary infection which so often complicates and adds to the fatality of bites by poisonous snakes and his epileptic attacks ceased. A Philadelphia physician, Dr. Ralph H. Spangler, learning of this fortunate result, and having had some experience in using crotalin in the treatment of pulmonary tuberculosis, attempted to reproduce the favorable issue of the epileptic's accident. That any measure of success sufficient to justify the adoption of crotalin treatment for epilepsy has accrued to Spangler's efforts is not to be concluded from his published reports in medical periodicals, or from the reports of trustworthy and competent professional observers. On the other hand, there are a number of good and sufficient reasons why cautious physicians who respect the well-being of their patients and who desire a comfortable peace of mind should shun the administration of this treatment and advise against it.

Every well-informed epileptologist knows that a sudden shock or reaction may favorably, though as a rule but temporarily, influence the course of epileptic seizures. A maiming accident or surgical operation not uncommonly induces a break in the sequence of epileptic fits; still no one since the dark ages has advocated traumatism as a cure for "falling-fits." Likewise, intercurrent diseases like severe acute infections are often followed by an attack-free period; but it still remains for some venturesome therapist to produce such infection by design as a treatment for epilepsy. The rattlesnake-bite of the Texas youth and the artificial bites by Spangler's method belong in this category of accidental and temporary suppression of epileptic fits by the agency of severe reactions. But the artificial instillation of the venom, unlike the natural bite, is advocated as a procedure to be repeated.

The reaction which follows an injected dose of crotalus venom, both the severe local irritation and the marked constitutional disturbance, is far from pleasant, even at a time when "reactions" are belittled to physicians; and to carry out the treatment by the Spangler method a continuous series of such reactions with increasing doses of poison must be instituted. Ignoring the danger of anaphylaxis, which certainly is possible, and of infection by contaminating bacteria residing in the crudely obtained dried venom or appearing in its solution, there is the undisputed fact of hemolysis to be gravely considered — for "all snake-poisons have a hemolytic power." The plight of the average epileptic is too commonly hopeless; still it seems scarcely humane to add to his already heavy burden a state of chronic intoxication by a potent, deadly agent with insidious, blood-destroying power, and a well-known proclivity to prepare the way for pyogenic infections.

If further advice were needed on this head, it would be to leave the crotalin treatment of epilepsy in the hands of its adventurous author for administration to those unfortunate victims of epilepsy whose desperation has led them, knowingly, to assume a great risk, with a very small promise of benefit.

Current Comment

PROGRAM OF SOCIAL SERVICE ADOPTED BY THE CHURCHES

The church has been criticized for sticking too closely to dogmatic instruction in religion and not making practical application of its teachings to the every-day social and material things of life for the betterment of those whom it attempts to reach. Realizing that modern conditions make it incumbent on the church to take greater interest in such matters, the leaders of the Protestant churches of America, after previous ineffectual attempts in this direction, in 1905 convened a national church conference, having for its purpose the formation of some plan by which the evangelical churches might unite to meet this modern demand. This conference perfected an organization, the Federal Council of the Churches of Christ in America, with committees covering different branches of social service, and after considerable study and some practical experience along the lines mapped out, the council has adopted, as the program for future work, the report of the Commission on the Church and Social Service, on which it has agreed that the churches must stand. That program, in addition to some general pronouncements in regard to equal rights and complete justice for all, favors the single standard

of morals, uniform divorce laws, proper regulation of marriage and proper housing; the abolition of child labor; regulation of the conditions of toil for women so as to safeguard the physical and moral health of the community; the protection of the individual and society from the social, economic and moral waste of the liquor traffic; the conservation of health; protection from dangerous machinery, occupational diseases and enforced employment; suitable provision for the old age of workers and for those incapacitated by injuries; arbitration in industrial disputes; one day of rest in seven for the worker; gradual and reasonable reduction of the hours of labor; a living wage as a minimum in every industry, and the highest wage that each industry can afford; the application of Christian principles to the acquisition and use of property, and the equitable division of the product of industry. This seems a sensible and not impracticable program, and with proper and practical leadership nothing could be better adapted than the established organization of the church, reaching, as it does, every community and every class, to assist in bringing about within a reasonable time, at least some portion of these eminently desirable reforms.

SPIROCHAETA PALLIDA IN THE BRAIN IN GENERAL PARALYSIS

Noguchi and Moore[1] examined the brains in seventy cases of typical general paralysis, and in twelve they succeeded in demonstrating *Spirochaeta pallida* in all the layers of the cortex save the outermost one. Both macroscopically and microscopically the anatomic changes corresponded wholly to those regarded as characteristic of this disease, so that there is no good ground for the possible assertion that they were dealing with frank instances of cerebral syphilis in the narrower sense rather than genuine general paralysis. This demonstration consequently must tend strongly to support the view that general paralysis is the result of the direct action of the parasite of syphilis in the brain; that cerebral syphilis and general paralysis in reality are, as asserted by Dunlap and others, part and parcel of the same process; or, to put it in a still different way, that general paralysis is nothing more or less than a peculiar form of tertiary syphilis. Now that the ground, so to speak, has been broken, it seems highly probable that in time we shall learn much more about the relationship of the spirochete to the brain in general paralysis. Further work will lead perhaps to improved technic, for it is acknowledged that the spirochete cannot be demonstrated infallibly with the present methods. If, indeed, it should be found that general paralysis is the direct result of syphilitic infection of the brain, thus bringing the disease into much closer connection with its cause than expressed in Kraepelin's conclusion that "syphilitic infection is an essential for the later appearance of general paralysis," the prospects of finding some way of curing actual paralysis would become more hopeful.

1. Noguchi, Hideyo, and Moore, J. W.: A Demonstration of Treponema Pallidum in the Brain in Cases of General Paralysis, Jour. Exper. Med., 1913, xvii, 232; abstr., THE JOURNAL A. M. A., Feb. 22, 1913, p. 627.

PRODUCTION OF IMMUNITY TO TUBERCULOSIS WITH BRANCHED FORMS OF TUBERCLE BACILLI

Under certain circumstances the bacillus of tuberculosis grows into peculiar branched forms that resemble certain fungi. According to Dixon[1] such forms develop quite regularly when the tubercle bacillus grows at higher temperature than usually employed for the artificial cultivation of microorganisms, the most suitable temperature for this purpose being between 52 and 56 C. Under these circumstances the power ordinarily possessed by the tubercle germ of resisting decolorization by acid solutions may be lost, the germs becoming non-acid-fast. This last change is ascribed to loss of the waxy envelope on which the character of being acid-fast is believed to depend. Dixon finds that experiments on guinea-pigs show that the branching, non-acid-fast forms are less virulent than the original cultures from which they are produced and furthermore that they induce "the development of marked resistance to lethal doses of virulent tubercle bacilli." He gives no details of experiments bearing directly on this last point, however, and we must remain content with his statement to that general effect for the present. On the basis of these considerations and experiments Dixon has developed tuberculins for practical therapeutic purposes consisting on the one hand of watery extracts of tubercle bacilli and on the other of suspensions of "degreased bacilli," the theory being that in this way are obtained antigens of little toxicity but good antigenic virtue. The quintessence of Dixon's report is therefore the emphasis placed on the immunizing value of the wax-free tubercle proteins and the non-acid-fast branching forms of the tubercle bacillus. The details of the actual underlying experiments are awaited with interest. Reports of the therapeutic results are already at hand,[2] and the hope may be expressed that the further tests may have such outcome as to leave no doubt as to the real merits of the treatment.

PUBLIC OPINION AND MEDICAL EDUCATION

The statements in newspapers after the recent conferences on medical education held in Chicago show that public opinion is not only growing more favorable toward improvement in medical education, but is even beginning to demand such improvement. Referring to the recent action of the Association of American Medical Colleges in adopting higher entrance requirements for medical schools, the Wilmington (Del.) *News* says:

> It would be hard to reach too high a standard in medical training and education. There is no more important vocation that that of the physician, but the importance of the profession as it affects the general public has not been appreciated in the proper manner. A few years ago no large city was without its mushroom medical colleges, commercialized institutions that were conducted for the purpose of money-making, grinding out diplomas given to men utterly unfit to deal with matters of life and death. . . . A smaller number of institutions with better equipment for the study of medicine and surgery would be far better than an unlimited number of indifferent institutions.

1. Page 993, this issue.
2. Francine, A. P., and Hartz, H. J.: Results with Tuberculin (Dixon's) in Advanced Chronic Ambulatory Tuberculosis, THE JOURNAL A. M. A., March 8, 1913, p. 717.

And this from the Joliet (Ill.) *Herald:*

With the ever-increasing number of physicians thrown out of the medical schools of the country each year, many of them with inadequate preparation—although sufficient, it will be admitted, to pass the necessary examinations to practice—the raising of the standard will be welcomed by all thinking men.

There are still some who fail to discriminate between the "poor boy" who is poor in purse and the one who is poor in scholarship. This is apparently the case with the Albany (N. Y.) *Argus,* which says:

The extra year seems unnecessary. . . . While it is highly desirable that the standard of the profession be raised to as high a plane as possible, requirements for entering it should not be unreasonable. For a poor young man to devote five years to study in a college before he can practice is a hardship few will undertake. It means five years of privation and hard work in addition to his studies. We do not want any of the professions closed to poor boys.

Not so the Elmira (N. Y.) *Star* which, after reproducing the statement just quoted, adds:

The *Argus* is right so far as the "poor boy" is concerned—but there are the "poor people" to be considered, too. The medical profession deals in life and death. On the judgment and ability of the physician, and the skill and deftness and accuracy of the surgeon depend the number of days we may enjoy life on earth. If there is one profession more than another that should be most severe in its requirements it is the profession of medicine. Hitherto there has been too much laxity in the demands for efficiency and proficiency. The tendency now is the other way, and it is good for humanity.

The campaign for better medical schools and better doctors carried on in recent years by the American Medical Association, the Carnegie Foundation for the Advancement of Teaching, the Association of American Medical Colleges and other organizations has already done much to create a public interest in these matters. After all, it is the people themselves who should be chiefly interested in the character of the training and the qualifications of those who are to care for them when sick or injured.

PUBLIC ENLIGHTENMENT THROUGH ADVERSE CRITICISM

Adverse criticism sometimes draws public attention to the truth regarding important affairs, where otherwise no attention would be paid to the facts. The following is an instance: After commenting on some resolutions adopted by the medical faculty of Drake University, when it was decided to merge that school with the College of Medicine of the State University of Iowa, and after giving a short history of that medical school, the *Journal of the Iowa State Medical Society* proceeds to pay its compliments in the following language to a certain critic of practically all progressive medical measures:

We regret to say that there was published in the Des Moines *Capital* a contribution from the distinguished Bremer County statesman, one Miller, who says that Drake University Medical School came to its untimely death at the hands of the great medical trust, the American Medical Association. Mr. Miller finds it difficult to understand how an institution without legal authority can exercise such a powerful influence as to destroy weak medical colleges and all other things medical that come in its way. This is a proposition of course Mr. Miller cannot fully understand for the reason that the American Medical Association represents the highest ideals of the American people. The American Medical Association has endeavored to stand for the very best, and to crush out all of those monsters that prey on public ignorance, and this is why the American Medical Association has come to have its great influence. The resolutions passed by the Drake University Medical School do not set forth the claim that the American Medical Association, in order to clear the medical atmosphere, crushed out the institution, but rather say that "their efforts to secure the necessary funds for the endowment and public support of the medical school in accordance with the highest standards, have been unsuccessful." It must be discouraging to a statesman like Mr. Miller to see right prevail over wrong, and to see medical progress go on from year to year, from month to month, and from day to day, and yet be unable to stop it.

In the preceding statement, therefore, additional facts are brought to the attention of the medical profession and the public, which would not have been the case had there not been an effort to belittle the work of the organization representing the medical profession of this country. Fortunately also such efforts usually result in calling the attention of the public to the character and work of those making such criticisms. The American Medical Association has nothing to conceal, and invites the widest publicity of its motives and its work.

THE AMERICAN STANDARD FOR ENTRANCE TO MEDICAL COLLEGES

In the Medical Education department of this issue is given a detailed outline showing the minimum preliminary education which should be required for admission by every medical college. Also it is the minimum that should be required by every state licensing board of those who are to practice the healing art by whatever method or system. This minimum represents, in addition to a standard four-year high-school education, a year of college work including at least eight semester hours each of physics, chemistry, biology and German or French. It is understood that the college year may be taken either in an accredited college of liberal arts or in a preliminary year given under satisfactory conditions by the medical college itself. This standard has long been the minimum requirement in practically all other civilized nations, and is the standard which has been advocated by the American Medical Association through its Council on Medical Education since 1904. It has just been adopted at a joint meeting of committees representing the Association of American Medical Colleges and the Council on Medical Education, acting with the advice of Dr. Kendric C. Babcock, higher education expert of the United States Bureau of Education. The general adoption of this standard throughout the country will mark another distinct epoch in the progress of medical education in the United States.

STORM HAVOC AND THE DANGER OF EPIDEMICS

The devastation and death lately caused by tornado and flood seem almost unprecedented in this country. The situation has called for strenuous action on the part of governments, organizations and individuals, including the great body of physicians, for financial, material and medical relief; and to the credit of our

citizens such relief has not been wanting. The destructive wind and rain storms extending from Western Canada to Georgia were followed by the series of tornadoes at Omaha and the middle west, and the terrific hurricanes and rains with resulting tremendous floods in Indiana and Ohio. Ere we received full details of one fierce storm, news of a greater one crowded it from notice. The reported loss of St. Elizabeth Hospital at Dayton, with several hundred patients and attendants, would be a most deplorable event. At the time of THE JOURNAL'S going to press, the report could be neither verified nor disproved. The immediate havoc wrought to life and property is only a part of the results of the storm, for following in its wake stalk sickness and death from exposure, the unavoidable lack, for a time, of food, medicines and care, and the disruption of sanitary conditions, with polluted water. The experience gained, however, by health authorities, the Red Cross and other relief organizations in previous calamities of this sort, will enable them soon to bring order out of chaos, and with the cooperation on the part of all persons, the situation will be quickly cleared up. Naturally we may look for pneumonias and other congestive diseases. Little can be done to avoid these, but epidemics of intestinal diseases can be successfully guarded against. Where sewerage and water systems have been affected, the slogan for several weeks must be *boil the water and pasteurize the milk*. With the breaking of dams and sewers and the flooding of water-supplies whether of wells or reservoirs, the water is bound to be polluted, and typhoid fever is almost certain to become widespread unless the simple precaution of purifying the water by boiling is immediately adopted. This should be continued in every household for weeks and perhaps months until danger from this source is past. The wide extent of the storm and flood area makes the task of relief a tremendous one, but the quick response of the American people in such calamities renders it certain that relief will be afforded and suffering prevented to the greatest possible extent. The responsibility of the members of our profession at this time is great and of course will not be shirked. It is a time when we cannot wait to be called on; it is an occasion for voluntary active work.

Medical News

ILLINOIS

Hospital for Mendota.—Plans are being made for the remodeling of the Mendota College building so as to adapt it for use as a hospital.

Fire at State Hospital.—A fire at the Bartonville State Hospital, early March 16, did considerable damage to cottage C 5. The 150 female inmates of the building were removed without casualty.

Personal.—Dr. A. E. Kidd has been reelected president of the Quincy Civic Improvement League.—The *Herald-Transcript*, in its issue of March 14, pays tribute to the services given to the Peoria Association of Commerce during the past year by its president, Dr. Clifford U. Collins.——Dr. J. A. Wheeler, Auburn, state game commissioner, was presented with a diamond pin by the deputy state game wardens, March 12.

Ill and Injured.—Dr. J. W. Rendleman, East St. Louis, fell March 10, fracturing both forearms at the wrist.——Dr. Cabeen, Galesburg, who was operated on for appendicitis, has recovered and returned home.——Dr. Frank Worden, Alton, who has been ill for eight weeks with rheumatism, is reported to be improving.——Dr. W. H. Schwingel, Aurora, fractured his right forearm while cranking his automobile, March 14.

Examinations for Cook County Hospital Staff.—The Cook County Civil Service Commission will hold examinations for attending and associate physicians for the following departments of the Cook County Hospital at 547 County Court House, at 7 p. m., on the following dates:

Medicine, 18 positions, April 3.
Nervous and Mental Diseases, 4 positions, April 4.
Contagious Diseases, 6 positions, April 5.
Children's Diseases, 6 positions, April 7.
Tuberculosis, 8 positions, April 8.
Surgery, 18 positions, April 10.
Skin and Venereal Diseases, 4 positions, April 11.
Obstetrics, 4 positions, April 12.
Gynecology, 4 positions, April 14.
Ear, Nose and Throat Diseases, 4 positions, April 15.
Eye Diseases, 4 positions, April 16.
Orthopedics, 4 positions, April 17.
Pathology, 4 positions, April 17.

Those desiring to take any of these examinations must make their applications on blank forms which will be sent by the commission on request, and file them with the commission not later than 12 m. of the day next preceding the date for which the examination is called. The appointments are for six years. The hospital treated last year over 34,000 patients. The patients will be grouped in the departments into services of about fifty beds each in permanent locations. One attending and one associate physician are assigned to a service. As soon as possible promotional examinations will be held for a chief in each department who will be responsible for the general organization and control of his department. The attending physicians are required to attend at the hospital three days each week at least two hours each day, while the associate physicians must attend at least two hours each day five days every week. Both attend continuously with an allowance of three months' vacation each year. The scope of the examination will be, special subject 6, experience 4. In the marking of experience, the nature of the position makes academic and medical school education, service as an intern, in general practice or in practice of a specialty, graduate work, hospital and dispensary work, original research work, important contributions to medical literature and teaching advantageous to the applicant.

Chicago

Southside Physicians' Club.—The Southside Physicians' Club has recently been formed for purely social purposes. Meetings are to be held monthly for the promotion of goodfellowship. Dr. William Cuthbertson is president and Dr. Frederick G. Dyas, secretary.

Tuberculosis Exhibit.—A tuberculosis exhibit was opened, March 25, at 19 West Jackson Boulevard, under the auspices of the Chicago Tuberculosis Institute. The exhibition is to be open for two weeks and on each day two or three lectures will be given on various phases of the general subject of tuberculosis. The public is invited to attend.

Free Public Lectures.—A series of free public lectures are being given under the auspices of the Southside Branch of the Chicago Medical Society on Friday evenings at Abraham Lincoln Center. The dates, subjects and speakers are as follows: March 21, "Nervousness," Dr. Charles L. Mix; March 28, "Some Medical Phases of the Vice Problem," Dr. Willis O. Nance; April 4, "Preventive Medicine," Dr. E. B. Tateur; April 18, "The Housing Problem," Dr. A. B. Yudelson, and April 25, "Woman's Place in Public Health Movement," Dr. G. W. Webster.

Personal.—Dr. Frank Billings, First Lieutenant, M. R. C., U. S. Army, was placed on the active list on account of an emergency and was detailed as special professor to the Army Medical School, Washington. Dr. Billings went to Washington, March 15, and delivered a series of lectures before the students of the Army Medical School.——Dr. Edward B. Fetherston, who has been ill with pneumonia at the German-American Hospital since February 19, is reported to be securely convalescent.——Dr. and Mrs. J. A. Robison have sailed for the Mediterranean.——Dr. J. Allan Hornsby, superintendent of Michael Reese Hospital, has resigned.

INDIANA

New Powers for State Board.—The attorney general has rendered a formal opinion to the State Board of Health which gives it power to regulate and prescribe the character and location of plumbing, drainage, water-supply, disposal of sewage, lighting, health and ventilation of practically all the school buildings in the state.

Tuberculosis Camp to Open.—Arrangements for the opening of the Twin Hills Tuberculosis Camp are well under way. It is expected that the camp will be opened on or before April 1. Drs. F. W. Shaley, Loucks and John H. Hewitt, Terre Haute, have been appointed a committee to confer with the commissioners of Vigo County in regard to an appropriation for the maintenance of the camp.

Personal.—Dr. J. N. Hurty, state health board secretary, has been appointed a member of the National Commission on Milk Standards and has also been asked to draft a model health bill for the state of Iowa.——Dr. James A. Milligan, deputy warden of the state prison, Michigan City, has been appointed physician to the Indiana Hospital for Insane Criminals in connection with the prison. Dr. Paul Bowers continues in his present capacity as prison physician.——Dr. Robert Harris, South Bend, celebrated his ninetieth birthday anniversary, March 14.

MARYLAND

Nurses' Home for Hospital.—A building in Elkton was purchased by the managers of the Union Hospital, March 13. The building will be used as a home for the nurses connected with the hospital.

Small-Pox Hospital Closes.—Dr. Thomas L. Richardson in charge of the Quarantine Hospital, Hawkins' Point, announced that he expects to close the hospital this week unless other small-pox cases or suspects are found.

Baltimore

Laboratory Installed.—An experimental pathologic and bacteriologic laboratory and a new *x*-ray department have been installed at the Church Home and Infirmary.

Personal.—Drs. Page Edmunds, Hugh H. Young and Eric Bergland have sailed for Bermuda.——Dr. Walter F. Wickes has returned after several months in Florida.

New Paintings for Medical Hall of Fame.—The Medical and Chirurgical Faculty of Maryland was presented with a portrait of Dr. John Fonerden, superintendent of the Maryland Hospital for the Insane from 1846 to 1869, first librarian of the faculty, and medical adviser of Johns Hopkins, by the board of managers of Spring Grove State Hospital, at a joint session of the Maryland Psychiatric Society and the Book and Journal Club, March 18. In his presentation speech, Dr. Arthur P. Herring, secretary of the State Lunacy Commission, gave a history of the career and activities of Dr. Fonerden.——A portrait of Dr. L. McLane Tiffany is to be hung in the building of the Medical and Chirurgical Faculty of Maryland. Dr. George Walker is secretary of the committee in charge.

College Consolidation Ratified.—On March 19 the board of regents of the University of Maryland ratified the agreement whereby the University may absorb the Baltimore Medical College. It has been agreed also to take into the faculty of the enlarged medical school the following members of the faculty of the Baltimore Medical College: Dr. Charles G. Hill, professor of nervous and mental diseases; Dr. A. C. Pole, professor of descriptive anatomy; Dr. David Streett, professor of the practice of medicine; Dr. J. D. Blake, professor of clinical surgery; Dr. S. K. Merrick, professor of diseases of the nose and throat; Dr. J. Frank Crouch, professor of clinical ophthalmology and otology; Dr. J. M. H. Rowland, professor of clinical obstetrics; Dr. Charles O'Donovan, professor of clinical pediatries and clinical medicine; Dr. G. Milton Linthicum, professor of proctology; Dr. R. B. Warfield, professor of practice and surgery; Dr. W. B. Perry, professor of clinical gynecology; Dr. Tilghman B. Marden, professor of histology and embryology.

MASSACHUSETTS

Fire at State Sanatorium.—On March 18, a fire was discovered in the boiler and power house in the State Sanatorium for Consumptives, Rutland. By prompt action the damage was confined to the lower floor and the main buildings were at no time endangered.

Personal.—Dr. L. Vernon Briggs, Boston, has been appointed a member of the State Board of Insanity.——Dr. G. A. Demopoulos, Lowell, has returned after two months' service in the Greeco-Turkish war in which he was wounded and incapacitated for service.——Dr. Charles F. Lynch, Springfield, has been elected a member of the surgical staff of Mercy Hospital.

Hospital News.—A meeting was held in Palmer, March 10, to further the erection of a hospital in that city.——A majority of the board of trustees was elected as a committee to proceed with the incorporation of the Wing Memorial Hospital.——At a meeting in Faneuil Hall, Boston, under the auspices of the Beth Israel and Bicker Cholem Hospital Association, pledges exceeding $30,000 were made for a fund for a Jewish hospital. The committee in charge is considering several sites for the proposed institution.

NEW YORK

Aschoff in Buffalo.—Dr. Ludwig Aschoff, professor of pathology in the University of Freiburg, Germany, delivered an address in Buffalo, March 16, under the auspices of the Buffalo Academy of Medicine on "Thrombosis."

Sanatorium Purchased.—The Hempstead (L. I.) Sanatorium has been purchased by the French Visiting Sisters whose home is in Brooklyn, for about $18,500. The sanatorium will be used as a hospital and home for the order.

Personal.—Dr. James S. Walton has been reappointed health officer of Amsterdam.——Dr. Josiah Hasbrouck, Sleightsburg, is ill in New York City with an infection of the hand.——Dr. J. C. Otis, Poughkeepsie, who has been ill for several weeks, is convalescent.

State Hospital Damaged.—The heavy storm of March 21 cut a swath 20 feet wide through the grounds of the Utica State Hospital, broke 500 windows, tore the tin roofs off of several of the buildings and threw the 1,500 patients into a panic. No lives were lost.

Investigate Rural Sickness.—The State Charities Aid Association, in pursuance of its policy looking to the improvement of methods of caring for the sick in rural communities, is making an investigation of conditions in Dutchess County. They have found thus far that the greatest need is hospital or institutional care and that another pressing need is that of housekeepers for families where the wife or daughter is the one incapacitated. The community investigated was a farming population and this will be followed up by injury into conditions in certain wards of Poughkeepsie engaged in manufacturing. The Poughkeepsie Academy of Medicine has cooperated with the association and the investigation will be continued through the summer. It is believed that the results of the inquiry aim at the establishment of a municipal hospital in Poughkeepsie and of higher standards of sanitary precautions in the country and the smaller cities.

New York City

Personal.—Dr. Allen McLane Hamilton is reported to be seriously ill in the Presbyterian Hospital.——Dr. A. T. Bristow is reported to be seriously ill at his home in Brooklyn with septicemia, due to an operation wound.

Dental Clinics Opened.—The Department of Health has opened six dental clinics for school children. They were made possible by the 1913 budget. In a statement made by the department it is claimed that 420,000 of the 700,000 school children in the city are in urgent need of dental treatment.

New Hospital Buildings.—Mount Sinai Hospital has received a donation of $125,000 from Samuel and Harry Sachs for the support of free beds in the neurologic department, in memory of Joseph and Sophia Sachs. A new ward has been opened for children suffering from nervous diseases and the men's and women's wards of the neurologic division have been enlarged. One of the new buildings which the hospital is about to erect will be designed with special reference to the requirements of a thoroughly-equipped neurologic institute.——Contracts aggregating more than $1,000,000 have been signed for the erection of a convalescent home at White Plains provided for by the Winifred Masterson Burke Relief Fund. The property owned by the foundation consists of $2,000,000 in real estate and $3,000,000 in personal property; the income of what remains after the buildings are erected is to be used for maintenance. The home will occupy a site of 60 acres at White Plains which has been purchased from the Bloomingdale Asylum for $180,000. The plan calls for eight buildings to which additions will be made as needs grow. There will be accommodations for 300 persons. Dr. Frederick Brush has been chosen superintendent of the institution.——The Sydenham Hospital will erect a new six-story modern hospital building on the present site. The new structure has been made possible by the gift of $100,000 from Mr. Isaac Guggenheim. When completed the new hospital will cost $350,000 and will contain 200 beds.

OHIO

Governor Entertains Physicians.—Governor Cox entertained the medical members of the legislature at dinner at his residence, March 6. Medical legislation and other matters were informally discussed.

Personal.—Dr. and Mrs. George Gill, Elyria, sailed for Europe, March 22.——Dr. A. J. Weston, Cleveland, was beaten and robbed in his office, March 17.——Dr. J. W. Costello, superintendent of the District Tuberculosis Hospital near Lima, has resigned.

Clinical Congress.—The Ohio State Clinical Congress met in Cleveland, March 17-18, and clinics were held mornings and evenings at the various hospitals of the city by local men. Dr. William H. Humiston is chairman and Dr. J. M. Ingersol, secretary of the local committee.

Hospital News.—On March 4,, $13,000 was turned over to Miami and St. Elizabeth's hospitals, Dayton, by the city auditor. St. Elizabeth's Hospital is the one reported (as THE JOURNAL goes to press) as having been carried away with 600 inmates in the flood devastating Dayton.——The Ohio Hospital for Epileptics, Gallipolis, is reported to be overcrowded. The capacity of the institution is 1,200 and in March there were 284 more than the capacity of the buildings in addition to a large waiting list. The management asked the legislature for an appropriation of $210,000 for the erection of additional buildings.——The medical staff of the Lucas County Hospital has asked the county commissioners to appropriate $100,000 for the erection of a new infirmary and hospital to accommodate 150 patients and to be erected on a site adjoining the County Infirmary.

Cincinnati

Personal.—Dr. Samuel Iglauer, junior otolaryngologist to the Cincinnati Hospital, has been promoted to the senior staff, vice Dr. Samuel E. Allen, resigned.——Dr. G. L. Krieger has been appointed a member of the Cincinnati School Board.

Want Woman Physician at Longview.—At the last meeting of the Cincinnati Woman's Medical Society, resolutions were adopted deploring the fact that there is no resident woman physician at Longview Hospital and recommending that the society take steps to have a woman physician appointed on the medical staff. Drs. Ruth G. Bernheim, Bertha C. Lietze and Ella G. Hunt were appointed a committee to take up the matter with the authorities and report at the next meeting.

PENNSYLVANIA

Sanatorium Nearly Ready.—The new sanatorium near Warren, erected at a cost of $20,000, is nearing completion. The institution will accommodate thirty patients.

Portrait Presented to Society.—At the meeting of the Franklin County Medical Society, March 18, at Chambersburg, J. E. Whitmore, Greencastle, presented the society with a portrait of the late Dr. William Grubb, one of the best known practitioners of Franklin County, who died in 1885.

Correction Concerning Dr. Hawkins.—Through an error THE JOURNAL announced, February 22, that Dr. John A. Hawkins, Pittsburgh, had been operated on for cataract. The item was quoted from a newspaper. Dr. John A. Hawkins, Fawn Grove, was the one on whom the operation was performed. The first intimation of this error has reached THE JOURNAL only in time for this issue.

Personal.—Dr. Clinton Rutter, Northumberland, who was operated on recently at the Medico-Chirurgical Hospital, Philadelphia, has returned home convalescent.——Dr. J. S. Carpenter, Pottsville, was injured, March 17, by the overturning of his automobile.——Dr. Alice Roger Easby and husband, Media, have started for Europe.——Dr. Mary B. Kingsbury, Pottsville, has been tendered the position of bacteriologist in the Swedish Hospital, Minneapolis.——Dr. William F. Marks, a member of the Reading Board of Health for thirty-three years, has resigned.

Four Reports From Commission.—The irreconcilable divergence of opinion in the Pennsylvania State Vaccination Commission led to the preparation of four reports which will be submitted to the general assembly. Among the drastic recommendations of the minority reports are the abolition of all vaccination laws, the prohibition of quarantine of persons refusing to be vaccinated, and legal redress from injuries resulting from vaccination. During the two years since the commission was appointed, fifty-eight witnesses appeared before it, of whom thirty were physicians and of these only four were opposed to vaccination. The majority report, signed by the chairman, Emil Rosenberger, Philadelphia; Drs. William M. Welch and Jay F. Schamberg, Philadelphia, and Edward A. Woods, Pittsburgh, favors the continuance of the prevailing regulations

Philadelphia

Babies' Clinic to Have Social Service Nurse.—So successful have been the Friday afternoon baby clinics at the Children's Homeopathic Hospital that a social service nurse is to be installed, whose duties will be to talk to mothers giving advise how to carry out instructions; to follow up each baby brought to the clinic and to have very ill babies sent to the hospital

Lectures.—Jefferson Medical College announces that the Samuel D. Gross lecture for the 1912-13 session will be delivered by Dr. William L. Rodman in the clinical amphitheater of the Jefferson Hospital, March 28, at 8:15 p. m. Prof. H. P. Armsby of the Pennsylvania State College, Institute of Animal Nutrition, will deliver the next Weir Mitchell lecture in Mitchell Hall, the College of Physicians, at 8:30 p. m., April 4, on "Animal Calorimeters and the Study of Nutrition."

Recommendations of Mental Hygiene Conference.—At the close of the Conference on Mental Hygiene, March 22, a legislative dinner was given at which resolutions were passed advocating the passage of the Ambler bill which provides for the creation of a state home for feeble-minded women; the creation of a department of research by the state for investigation into the cause and prevention of insanity and feeble-mindedness; the establishment of "after-care" departments in each of the state hospitals for the insane as places for clinical treatment of the feeble-minded and the creation of a new state hospital for the insane in the southeastern district of Pennsylvania to relieve the overcrowded insane wards at the Philadelphia General Hospital.

Measles Spread Caused by Immigrants.—The records of the Health Department for the week ended March 22 show 1,182 new cases of measles, an increase of 38 over the number reported during the previous week. This epidemic is said to be due to the fact that there is not sufficient room at the local quarantine stations to care for cases which arrive on vessels. During an inspection of Marcus Hook Quarantine Station by members of the Committee on Appropriations of the State House of Representatives, this condition was pointed out by Dr. W. M. L. Coplin, a member of the State Quarantine Board. There are only a few frame buildings at the station, which was formerly a summer residence. The house is used for operating a dispensary and executive offices, the stable, for a disinfecting plant and a rude frame building constructed many years ago, serves as the hospital proper, but has beds for only twenty-four persons. Last year the station inspected 1,696 vessels, on which were a total of 136,837 persons, of whom nearly 50,000 were immigrants. The legislature was asked for an appropriation of $65,000.

WYOMING

New State Board.—The new State Board of Medical Examiners for Wyoming appointed by the governor is reported as consisting of Dr. John B. Tyrrell, Laramie; Dr. C. D. Stafford, Kemmerer, and Dr. J. G. Cogswell, Riverton. The board met at once and organized, electing Dr. Stafford president, Dr. Cogswell vice-president and Dr. Tyrrell, secretary.

GENERAL

Ophthalmologic and Otologic Meeting.—The next meeting of the American Academy of Ophthalmology and Otology will be held at Chattanooga, Tenn., October 27-29.

Health of the Mobilization Camp.—The health of the troops in the mobilization camp at Texas City is reported to be excellent. There were only seven cases of illness at last reports, including two cases of mumps and one accident.

Quarantine Restriction to be Withdrawn.—The sanitary department of the Canal Zone is about to withdraw the restriction which it has been imposing on vessels arriving at Colon from Liverpool since July last. The last plague-infected rat at Liverpool was found Aug. 30, 1912.

Purity Congress.—The Seventh International Purity Congress will be held under the direction of the World's Purity Federation at Minneapolis, November 7-12. The program will include discussions on the annihilation of the white slave traffic, the suppression of public vice, instruction in sex hygiene and social, civic and moral reform

Personal.—Dr. Robert L. Dixon, Lansing, secretary of the Michigan State Board of Health, has been elected president of the Lake Michigan Sanitary Association.——Dr. R. B. Teusler, superintendent of St. Luke's Hospital, Tokio, Japan, has returned to the United States on a visit after fifteen years in the Orient.

Crippled Children Discussed.—The sectional meeting on crippled children was held in connection with the Conference on Industrial Education for Children in New York City, March 8. Douglass C. McMurtrie spoke on the historical development of the care for the department and the expense in connection with the trade training in the United States and abroad. Charles H. Burr of the New York Orthopedic Hospital told of the lessening necessity for industrial education in the work of his institution due to the early age at which patients are now being received. Dr. Charles H. Jaeger, New York City, discussed the industrial training provided for adult cripples at the Trade School of the Hospital of Hope. Miss Florence Sullivan of the Trade School for Crippled Boys and Girls, maintained by the Brearley League, spoke on the difficulty of obtaining pupils who were willing to give up the time necessary for a full course. Miss Evelyn Goldsmith spoke on the need for industrial training for the graduates of the special classes for cripples in the public schools.

Infectious Diseases During March.—All of the infectious diseases continued to be quite prevalent during March, measles having the highest number of cases. Philadelphia and St. Louis were the centers of greatest prevalence, the curve of incidence rising steadily during the month for this disease. It is probable that the apex of the curve will not be reached until some time in April. Scarlet fever also continued to prevail widely, schools in many places being closed, although no large or fatal epidemic was reported from any locality during the month. Small-pox was also wide-spread, though not in fatal or very virulent form. Thorough vaccination ended the epidemic in Baltimore and Philadelphia, except for sporadic cases, and in Berkeley, Cal., after a period of quarantine the schools were allowed to open. Meningitis in scattering cases continued to appear in Louisiana, Arkansas, southern Illinois, in the region about Memphis and in Louisville and Maysville, Kentucky, and Cincinnati in sufficient number to cause some anxiety. Infantile paralysis has not appeared in serious epidemic form in any locality during the winter. The season has, however, been somewhat unusual in the number of cases of all the infectious diseases except poliomyelitis.

The Government and the Friedmann Treatment.—The board of medical officers appointed by the Secretary of the Treasury on the suggestion of the Surgeon-General of the Public Health Service to make a thorough investigation of Dr. Friedmann's alleged cure for tuberculosis announces the present status of the matter in *Public Health Reports*, March 21, 1913, as follows: "Dr. Friedmann has submitted to the board a culture of the bacteria which he states are used in his method of treatment. In addition to the observation of persons under treatment by Dr. Friedmann, the board of officers will make experiments to ascertain whether this culture is, as Dr. Friedmann claims, harmless to warm-blooded animals. Considerable time will necessarily be required to carry out these investigations. The work will be carried on as rapidly as possible. In the meantime the public is informed of the inadvisability of tuberculous patients traveling long distances in the hope of receiving the treatment. Those to whom it is administered for demonstration purposes are selected by the hospital authorities from among their patients; the number selected constituting only a small proportion of available volunteers. Certain statements purporting to be expressions of the opinion of the board of officers of the Public Health Service carrying on the investigation have appeared in the newspapers. These officers have expressed no opinion and will not be in position to do so until the work has advanced sufficiently to warrant some conclusion in regard to Dr. Friedmann's treatment."

LONDON LETTER

(From Our Regular Correspondent)

LONDON, March 15, 1913.

Final Report of the Committee on Tuberculosis

The committee appointed by the government to investigate and report on the prevention and treatment of tuberculosis has issued its final report. It believes that by means of treatment and education the risk of infection, even from persons in the more acute and advanced stage of the disease who live in intimate contact with others, may be largely diminished. Infection is frequently disseminated by persons suffering from advanced pulmonary tuberculosis who are in the habit of entering and leaving poor-law institutions. Compulsory isolation of certain cases in a state of high infectivity is particularly recommended when the patient's surroundings are such as to increase the risk of other persons becoming infected. Systematic and thorough disinfection of premises which harbor tubercle bacilli is enjoined, and stress is laid on the importance of early diagnosis. The committee believes that material prosperity of the community as a whole will be reflected in a decreased incidence of tuberculosis, and makes special reference to the necessity for the improvement of housing conditions, and the value of schemes for town planning and garden cities.

BOVINE TUBERCULOSIS

The committee is of the opinion that the ultimate eradication of animal tuberculosis is not impossible but is likely to be slow, and must depend on coordinated and continuous effort. The committee welcomes the proposed legislation dealing with the question of milk-supplies, but thinks that it should include the whole country, and should contain provisions conferring special powers on local authorities, the central authority having the right of enforcement in the event of default by local authorities. It recommends that in the preparation of any scheme for the eradication of bovine tuberculosis the following points should be provided for:

1. County councils and county borough councils should have powers and be required to inspect herds, dairies and farm buildings, and to administer all enactments relating thereto, their work being subject to adequate supervision by a central authority.

2. Only guaranteed tuberculin should be used, and facilities should be given, subject to such conditions as may be thought desirable, for the free testing of cows by qualified and authorized persons.

3. Certain cows should be slaughtered in the interest of both the public and the dairy industry, the premises thoroughly disinfected and no tuberculous animals added to the herd.

4. Measures should be uniform in character, and the same principles should be applied to the whole country.

5. The public should be educated to appreciate the greater value of pure tubercle-free milk and milk products.

6. Farmers should be taught that tuberculosis in cattle is infectious and not hereditary.

CHILDREN

The committee considers the evidence that children are infected through tuberculous milk, as well as from other sources, convincing. Additional provision is required for the treatment of children suffering from the disease, including those having pulmonary tuberculosis, tuberculosis in the bones and joints, and glandular and other forms of tuberculosis. In addition to the provision of treatment at sanatoriums and hospitals for tuberculous children mentioned in the interim report, there is urgent need for open-air treatment and education by means of open-air schools (day and residential), open-air classes, etc. These institutions should deal not only with tuberculous children, but also with the large number of children who are suffering from ailments which, if neglected, would be likely to increase their susceptibility to tuberculosis. These institutions should be utilized, as far as possible, to teach the advisability of the adoption of a practically open-air life in the homes of the children. The school medical officer should be closely in touch with the family medical attendant, and the tuberculosis dispensary should as far as possible provide the same service for children as for adults. Not only should there be a correlation between the dispensary and the various institutions for children, but also the institutions for children, such as the school clinic, the open-air school and the sanatorium, should be correlated in order to ensure the easy transference of children from one institution to another. All appropriate cases should be referred to the tuberculosis dispensary as a clearing-house for the confirmation of diagnosis in doubtful cases, for the purpose of clinical record and for treatment when required. Chidren of school age fit, or likely to become fit, to receive education in a modified form, should be referred to the school medical officer for education in open-air schools, sanatorium schools or other special schools, or in ordinary public elementary schools under special care and supervision. The arrangements should be such as to secure the cooperation of the general practitioner.

Research

Under the national insurance act a sum of 2 cents per insured person is allotted for research. This yields $285,000 a year. For the administration of this fund the committee recommends the establishment of an advisory council to determine a scheme of research work, and a permanent whole-time secretary, an expert of high standing in research possessing administrative capacity, at a salary of from $6,000 to $7,000. Inquiries should be conducted into clinical, pathologic, experi-

mental, statistical and sociologic questions, and every sanatorium, dispensary and other institution for the treatment of tuberculosis and other diseases should have access to laboratory facilities for carrying out routine work and for the collection of data. Many of these institutions should have complete laboratories of their own. There should also be a library and publishing department. The central bureau should be under the immediate control of the executive committee. Clinical, pathologic, bacteriologic, chemical and other scientific researches should be carried out by competent investigators. Some workers of proved ability should be enabled to devote their whole time to research work, should be given a definite adequate salary and be entitled to pension. Efforts should be made to retain young and talented investigators for such work. The committee considers that the success of the scheme of research recommended will not be fully secured unless it is accompanied by a general extension throughout the United Kingdom of clinical laboratories for the better diagnosis and treatment of tuberculosis, provided for by funds other than those available under the national insurance act.

MEDICAL EDUCATION

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PARIS LETTER

(From Our Regular Correspondent)

PARIS, March 7, 1913.

International Conference on Charitable Relief to Aliens

The International Congress on Charities held at Copenhagen in 1910 (THE JOURNAL, Sept. 10, 1910, p. 956), asked for the calling of an international diplomatic conference to map out a plan for giving help to aliens. This conference was held recently at Paris, with delegates from twenty countries. While all agree in desiring that charity shall know no political boundaries, and that help should be given freely when needed without regard to the nationality of the person in need, differences arise as to how the help shall be given. Some say that foreigners should be treated on the same basis as natives, meaning that the country in which the person resides shall pay. Others believe that there should be repayment by the native country of the person helped. The first plan has always been opposed by France, because, while there are only about 550,000 natives of France living abroad, there are more than 1,200,000 foreigners living in France. In 1911, out of 25,000,000 francs ($5,000,000) spent in medical charities in the home and in the hospital, 2,800,000 francs ($560,000), were spent on foreigners, 1,584,000 francs ($316,800) in the Department of the Seine alone.

When the principle of repayment is applied, it leads either to restricted relief or to the adoption of half measures. The Copenhagen congress recognized this by rejecting repayment for temporary relief and providing that it should be applied in cases of permanent or practically permanent assistance. After lengthy discussions the Paris conference ended by adopting all the decisions of the Copenhagen congress. In cases of temporary relief (accidents, acute diseases of short duration), the country in which the foreigner resides shall give him the same help that is given natives, without demanding repayment. In cases of prolonged or permanent relief the person shall be returned to his native land unless the country of his birth prefers to reimburse the country in which he is residing, or unless on appeal assistance is extended by a private benevolent society. The contracting countries are to encourage the formation of these societies, and each will take measures, conformable to its laws, to facilitate the working of their charitable functions. The conference also voted to establish an international set of rules governing associations and institutions established for the assistance of foreigners.

Surgery and the Balkan War

In a former letter (THE JOURNAL, Dec. 14, 1912, p. 2168), I told of the invitation which was received from Greece by Dr. Monprofit, professor of clinical surgery at the Ecole préparatoire de médecine d'Angers, to organize a sanitary service in that country. In the course of his trip Dr. Monprofit made observations of the greatest interest in surgery on the field of battle, and delivered a lecture on the subject at the last meeting of the Société de l'internat des hôpitaux de Paris.

At present the chief factor in the development of the treatment of wounds made in battle is the dressing of the wound as soon as possible, on the field or in the neighborhood, by means of the individual packet of dressings, carried by the wounded man himself. Doubts have often been raised as to the usefulness of this packet. It has been said that the soldier will not keep it, that he will not take the trouble to apply the dressing, and that besides he could not even if he would. These objections have been nullified by actual experience. The men had their individual packets; the dressing was in good condition when it was needed. The soldiers had been instructed as to the necessity of employing it in case of injury.

During battle the use of the dressings was universal; there was practically no exception to the rule. The wounded often applied the dressings themselves; otherwise the dressings were applied by the surgeons, the litter-carriers, comrades, or officers who happened to be near. The number of wounded in the Balkan War who owe life or limb to the use of the individual dressing on the battle-field is beyond calculation. The first condition of safety consists in the application as soon as possible of an aseptic dressing. Another condition not less important is complete avoidance of examination of the wound, ascertaining the course of the bullet, and using the probe and tampon. The success of non-interference has clearly been shown in this war, and there has been brilliant confirmation of the principles enunciated by Dr. Delorme in opening the last French Congress of Surgery (THE JOURNAL, Nov. 23, 1912, p. 1901).

Monprofit called particular attention to the difference in severity of wounds by projectiles from guns and those from cannon. Wounds made by bullets from guns of small caliber, such as those used by the Turks, are comparatively trivial; the pointed, long, straight bullets pass through the soft parts, spreading the tissues in such a way that they close together again after the passage of the bullet. Well protected from the outset, wounds made by these bullets heal quickly. Penetrating wounds of the chest with perforation of the lung have healed for the most part without complication. Wounds by shrapnel, on the contrary, are of the utmost severity: the bones are shattered, the tissues lacerated, the thorax or skull crushed in. The immediate results are frightful, and the ultimate results are much more severe than those from wounds made by bullets shot from guns. As a whole, the results of infantry-fire are relatively harmless, those of artillery-fire more and more severe.

When Dr. Monprofit repeated his lecture before the Académie de médecine there was a lively discussion between Reclus and Pozzi on the question of intervention in cases of abdominal wounds from projectiles of small caliber. Reclus believes that it is better to let the bullet remain in the body than to have recourse to the removal of obstructions, to probing, etc., in an effort to locate it, for this involves opening new vessels, starting further hemorrhage and introducing infectious germs into the midst of the tissues, notwithstanding efforts to adhere to the rules of asepsis and antisepsis. Non-intervention avoids all these contingencies and gives better results in general than intervention, even when it is possible to employ roentgenoscopy and roentgenography, means which are often unreliable in searching for projectiles. Pozzi is of the opinion that even if intervention is proscribed on the field of battle, it is indicated when the wounded man is in the hospital, where conditions are favorable for the success of its employment.

Treatment of Sydenham's Chorea

In line with the recent announcement of Pierre Marie as to the treatment of Sydenham's chorea with intravenous injections of salvarsan (THE JOURNAL, Jan. 4, 1913, p. 63), Dr. Comby said at a recent meeting of the Société médicale des hôpitaux de Paris that as good results may be secured through the administration of arsenic by mouth. Comby prefers to use Boudin's solution (a 1:1,000 solution of arsenous acid). He prescribes 5 gm. the first day in a mistura gummosa, 10 gm. the second, 15 gm. the third, 20 gm. the fourth, 25 gm. the fifth, and then diminishes the dosage 5 gm. daily until the initial dose of 5 gm. is reached, after which the medication is suspended. The duration of the treatment is nine days. Patients are also given rest in bed and an exclusive milk diet or one of milk and vegetables, and are isolated.

In 545 patients with chorea given this treatment Comby has noticed only one case of polyneuritic paralysis of the lower limbs. The disease was cured in the other patients at the end of twenty-eight or thirty days on the average.

Dr. Triboulet said that in 350 cases compiled by himself he had verified 335 cures without the use of arsenic, about 96 per cent. Before announcing the efficacy of the treatment of chorea by arsenic or any other medicament, the variety of chorea in question should first be determined, and above all how patients react to it who are seriously ill or in relapse. Triboulet concludes that patients with Sydenham's chorea can be cured by arsenic, in spite of arsenic, or without arsenic, all in the same length of time.

Acceptance of Donations

The Faculté de médecine de Paris has been authorized to accept the gift made by Mme. Dieulafoy, widow of the late professor, of two annuities of 500 francs ($100) each, to be known as the Donation Georges Dieulafoy, and to be used to cover the expenses of study, of examination, and of the printing of the theses of two French students in need of assistance.

The school has also been authorized to accept the gift of 28,000 francs ($5,600) from the widow of Dr. Henry Vivier, the income from which is to be used as endowments to help the scientific development of general medical clinics, or to be distributed as scholarships or for foreign medical missions, at times and in the manner fixed by the council of the school.

Anniversary of Professor Renaut

The fortieth anniversary of Dr. Renaut's debut as a teacher has been celebrated at Lyons. Dr. Renaut is professor of general anatomy and histology of the Faculté de médecine of that city. In addition to his colleagues, Pozzi and Albert Robin of Paris took part in the exercises, and telegrams were

mental, statistical and sociologic questions, and every sanatorium, dispensary and other institution for the treatment of tuberculosis and other diseases should have access to laboratory facilities for carrying out routine work and for the collection of data. Many of these institutions should have complete laboratories of their own. There should also be a library and publishing department. The central bureau should be under the immediate control of the executive committee. Clinical, pathologic, bacteriologic, chemical and other scientific researches should be carried out by competent investigators. Some workers of proved ability should be enabled to devote their whole time to research work, should be given a definite adequate salary and be entitled to pension. Efforts should be made to retain young and talented investigators for such work. The committee considers that the success of the scheme of research recommended will not be fully secured unless it is accompanied by a general extension throughout the United Kingdom of clinical laboratories for the better diagnosis and treatment of tuberculosis, provided for by funds other than those available under the national insurance act.

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International Conference on Charitable Relief to Aliens

The International Congress on Charities held at Copenhagen in 1910 (THE JOURNAL, Sept. 10, 1910, p. 956), asked for the calling of an international diplomatic conference to map out a plan for giving help to aliens. This conference was held recently at Paris, with delegates from twenty countries. While all agree in desiring that charity shall know no political boundaries, and that help should be given freely when needed without regard to the nationality of the person in need, differences arise as to how the help shall be given. Some say that foreigners should be treated on the same basis as natives, meaning that the country in which the person resides shall pay. Others believe that there should be repayment by the native country of the person helped. The first plan has always been opposed by France, because, while there are only about 550,000 natives of France living abroad, there are more than 1,200,000 foreigners living in France. In 1911, out of 25,000,000 francs ($5,000,000) spent in medical charities in the home and in the hospital, 2,800,000 francs ($560,000), were spent on foreigners, 1,584,000 francs ($316,800) in the Department of the Seine alone.

When the principle of repayment is applied, it leads either to restricted relief or to the adoption of half measures. The Copenhagen congress recognized this by rejecting repayment for temporary relief and providing that it should be applied in cases of permanent or practically permanent assistance. After lengthy discussions the Paris conference ended by adopting all the decisions of the Copenhagen congress. In cases of temporary relief (accidents, acute diseases of short duration), the country in which the foreigner resides shall give him the same help that is given natives, without demanding repayment. In cases of prolonged or permanent relief the person shall be returned to his native land unless the country of his birth prefers to reimburse the country in which he is residing, or unless on appeal assistance is extended by a private benevolent society. The contracting countries are to encourage the formation of these societies, and each will take measures, conformable to its laws, to facilitate the working of their charitable functions. The conference also voted to establish an international set of rules governing associations and institutions established for the assistance of foreigners.

Surgery and the Balkan War

In a former letter (THE JOURNAL, Dec. 14, 1912, p. 2168), I told of the invitation which was received from Greece by Dr. Monprofit, professor of clinical surgery at the Ecole préparatoire de médecine d'Angers, to organize a sanitary service in that country. In the course of his trip Dr. Monprofit made observations of the greatest interest in surgery on the field of battle, and delivered a lecture on the subject at the last meeting of the Société de l'internat des hôpitaux de Paris.

At present the chief factor in the development of the treatment of wounds made in battle is the dressing of the wound as soon as possible, on the field or in the neighborhood, by means of the individual packet of dressings, carried by the wounded man himself. Doubts have often been raised as to the usefulness of this packet. It has been said that the soldier will not keep it, that he will not take the trouble to apply the dressing, and that besides he could not even if he would. These objections have been nullified by actual experience. The men had their individual packets; the dressing was in good condition when it was needed. The soldiers had been instructed as to the necessity of employing it in case of injury.

During battle the use of the dressings was universal; there was practically no exception to the rule. The wounded often applied the dressings themselves; otherwise the dressings were applied by the surgeons, the litter-carriers, comrades, or officers who happened to be near. The number of wounded in the Balkan War who owe life or limb to the use of the individual dressing on the battle-field is beyond calculation. The first condition of safety consists in the application as soon as possible of an aseptic dressing. Another condition not less important is complete avoidance of examination of the wound, ascertaining the course of the bullet, and using the probe and tampon. The success of non-interference has clearly been shown in this war, and there has been brilliant confirmation of the principles enunciated by Dr. Delorme in opening the last French Congress of Surgery (THE JOURNAL, Nov. 23, 1912, p. 1901).

Monprofit called particular attention to the difference in severity of wounds by projectiles from guns and those from cannon. Wounds made by bullets from guns of small caliber, such as those used by the Turks, are comparatively trivial; the pointed, long, straight bullets pass through the soft parts, spreading the tissues in such a way that they close together again after the passage of the bullet. Well protected from the outset, wounds made by these bullets heal quickly. Penetrating wounds of the chest with perforation of the lung have healed for the most part without complication. Wounds by shrapnel, on the contrary, are of the utmost severity: the bones are shattered, the tissues lacerated, the thorax or skull crushed in. The immediate results are frightful, and the ultimate results are much more severe than those from wounds made by bullets shot from guns. As a whole, the results of infantry-fire are relatively harmless, those of artillery-fire more and more severe.

When Dr. Monprofit repeated his lecture before the Académie de médecine there was a lively discussion between Reclus and Pozzi on the question of intervention in cases of abdominal wounds from projectiles of small caliber. Reclus believes that it is better to let the bullet remain in the body than to have recourse to the removal of obstructions, to probing, etc., in an effort to locate it, for this involves opening new vessels, starting further hemorrhage and introducing infectious germs into the midst of the tissues, notwithstanding efforts to adhere to the rules of asepsis and antisepsis. Non-intervention avoids all these contingencies and gives better results in general than intervention, even when it is possible to employ roentgenoscopy and roentgenography, means which are often unreliable in searching for projectiles. Pozzi is of the opinion that even if intervention is proscribed on the field of battle, it is indicated when the wounded man is in the hospital, where conditions are favorable for the success of its employment.

Treatment of Sydenham's Chorea

In line with the recent announcement of Pierre Marie as to the treatment of Sydenham's chorea with intravenous injections of salvarsan (THE JOURNAL, Jan. 4, 1913, p. 63), Dr. Comby said at a recent meeting of the Société médicale des hôpitaux de Paris that as good results may be secured through the administration of arsenic by mouth. Comby prefers to use Boudin's solution (a 1:1,000 solution of arsenous acid). He prescribes 5 gm. the first day in a mistura gummosa, 10 gm. the second, 15 gm. the third, 20 gm. the fourth, 25 gm. the fifth, and then diminishes the dosage 5 gm. daily until the initial dose of 5 gm. is reached, after which the medication is suspended. The duration of the treatment is nine days. Patients are also given rest in bed and an exclusive milk diet or one of milk and vegetables, and are isolated.

In 545 patients with chorea given this treatment Comby has noticed only one case of polyneuritic paralysis of the lower limbs. The disease was cured in the other patients at the end of twenty-eight or thirty days on the average.

Dr. Triboulet said that in 350 cases compiled by himself he had verified 335 cures without the use of arsenic, about 96 per cent. Before announcing the efficacy of the treatment of chorea by arsenic or any other medicament, the variety of chorea in question should first be determined, and above all how patients react to it who are seriously ill or in relapse. Triboulet concludes that patients with Sydenham's chorea can be cured by arsenic, in spite of arsenic, or without arsenic, all in the same length of time.

Acceptance of Donations

The Faculté de médecine de Paris has been authorized to accept the gift made by Mme. Dieulafoy, widow of the late professor, of two annuities of 500 francs ($100) each, to be known as the Donation Georges Dieulafoy, and to be used to cover the expenses of study, of examination, and of the printing of the theses of two French students in need of assistance.

The school has also been authorized to accept the gift of 28,000 francs ($5,600) from the widow of Dr. Henry Vivier, the income from which is to be used as endowments to help the scientific development of general medical clinics, or to be distributed as scholarships or for foreign medical missions, at times and in the manner fixed by the council of the school.

Anniversary of Professor Renaut

The fortieth anniversary of Dr. Renaut's debut as a teacher has been celebrated at Lyons. Dr. Renaut is professor of general anatomy and histology of the Faculté de médecine of that city. In addition to his colleagues, Pozzi and Albert Robin of Paris took part in the exercises, and telegrams were

received from Waldeyer of Berlin, Laskowski of Geneva, Marinesco of Bucarest, and others.

Personal

Dr. Hartmann, professor of minor surgery at the Faculté de médecine de Paris, has been appointed professor of clinical surgery, succeeding Segond, who died in October.

Treatment of Infections by Ether

At a recent meeting of the Société de chirurgie, Dr. Souligoux made an interesting report on the employment of ether in infections. This was used for the first time in 1891 on a man who had had both legs crushed by a heavy truck. The patient refused double amputation and Souligoux dressed the two enormous wounds with ether and applied a plaster dressing. No infection followed, and the patient recovered. From that time Souligoux has always used this method in all the infections, whether severe or light, such as felons, lymphangitis and phlegmons, with excellent results in hundreds of cases. He begins by carefully cleansing the part with soap and water; then he applies compresses soaked in ether, covers these with a padding and binds them lightly.

After having studied the action of the ether on the peritoneum of guinea-pigs, he has been using this medication in abdominal infections in man and obtained unexpectedly good results: such, in particular, as the cure of a patient with intestinal obstruction for six days and a perforation of the cecum. After having sutured the perforation and having bathed the peritoneal cavity, which was full of pus and fecal matter, copiously with ether, he closed the abdomen, establishing drainage, and the patient recovered.

This method has been applied by Dr. Marcille, who sent Dr. Souligoux a memorandum of forty cases of peritoneal effusion, contusions and wounds of the abdomen with lesions of the intestine and of the stomach, or general peritonitis, and except for two or three deaths, intervention was followed by cure. Souligoux believes that he has ground for concluding that the application of ether in the treatment of infections of the peritoneum is accompanied with no danger and renders real service.

On the other hand Dr. Cuneo, who has obtained good results with ether in superficial infections, such as felons, has not been able to achieve success in peritonitis. He believes that in such cases operation should be done early and that the cause should be treated: removal of the appendix, closing the perforation, etc.

Powers of Resistance of the Sexes in Infancy

Statisticians agree that in man more males than females die in intra-uterine life and immediately afterward. This has been explained by the hypothesis that the male sex is more frail. This view has been contradicted by Drs. A. Pinard, professor of clinical obstetrics at the Faculté de médecine de Paris, and A. Magnan, in a communication to the Académie des Sciences. These investigators have been able to show from statistics collected at the Baudelocque Clinic between 1891 and 1910 that if the mortality of boys is greater than that of girls, this is true only for those infants dying during labor or in the few days during which the mother is obliged to remain at the clinic. The figures show that if the total number of fetuses dying during gestation is taken into account, more boys die some years and more girls in other years. In the long run the mortality among boys is not greater than that among girls. It remained to find the explanation of the greater number of deaths among boys during and after childbirth. Pinard and Magnan then thought of examining the weight of the fetus. They found that boys are heavier than girls, and this is sufficient to explain the greater mortality among boys. Being larger, they undergo more traumatism in their passage through the birth canal; this reduces their powers of resistance. They die during labor or if born alive they speedily succumb unless they regain a normal level of health.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, March 7, 1913.

Personal

Professor Heubner delivered his farewell lecture, March 1, in the presence of a large number of his present and former pupils and of members of the medical faculty of the university. The occasion was taken by some of his pupils to present a bust of Heubner which is to be a permanent ornament to the lecture room. Professor Finkelstein presented a *Festschrift* by the pupils and stated that a Heubner prize is to be established which shall be awarded once in three years for the best work in pediatrics.

Privat-Docent Dr. Noeggerath, a pupil of Heubner, has been called to succeed Professor Salge as director of the pediatric clinic at Freiburg.

The well-known Berlin gynecologist, Professor Dührssen, contracted a severe infection at an operation, which for a number of days seriously threatened his life. As a result he has felt compelled to give up the direction of his private clinic. In the last few days there has been some improvement in his condition.

This Year's German Medical Study Tour

The German Central Committee for Medical Study Tours has decided on a trip to the International Medical Congress in London, August 6 to 12, for which they have chartered the twin-screw steamer *Kronprinzessin Cecilie* of the Hamburg-American line. The trip begins August 3 at Hamburg and ends August 28, at the same place. Visits are contemplated to the chief points of interest in the British Isles and Holland.

Friedmann's Tuberculosis Remedy

The energetic action taken in the Friedmann matter by the New York physicians has given general satisfaction here. Professor Ehrlich is quoted in a German newspaper as stating that his tests with the remedy, which had been given him for official investigation, are far from being finished and months may elapse before the result will be known. All statements that may be published before the final report will be premature and must partake of the nature of guesses.

Association News

THE MINNEAPOLIS SESSION

Opportunity to Take a Side Trip to Glacier National Park, Newest American Playground

The Committee on Arrangements announces that one of the interesting side trips which may be made by those who attend the Minneapolis session of the Association, June 17-20, is that to Glacier National Park, in northwestern Montana.

This park, with an area of 1,400 square miles, is situated on the Great Northern Railway, in one of the most picturesque portions of the Rocky Mountains. Streams from sixty glaciers feed 250 mountain lakes which teem with trout. The region is another Switzerland; Mt. Wilbur, for example, has a striking resemblance to the Matterhorn. Log chalets have been built to afford eating and sleeping accommodations, and this will be the first season of a large hotel at the entrance to the park.

Opportunities of all sorts exist for going about in the park. A scenic highway has been built for automobiles; there is a horse stage; mountain ponies may be hired; on the larger lakes are boats; and those who like to walk or who wish to practice economy may tour the park on foot. More details will be given in the Minneapolis Number of THE JOURNAL, May 10, or may be obtained from Dr. H. H. Kimball, Chairman of the Committee on Excursions, 1106 Donaldson Building, Minneapolis.

Clinics at Minneapolis

On Monday, June 16, Friday evening, June 20, and Saturday morning, June 21, demonstration clinics will be given by prominent men from different parts of the country at the larger hospitals in the Twin Cities. Arrangements have also been made for surgical clinics in Minneapolis, St. Paul and Rochester during the several days immediately preceding and those following the scientific sessions. No clinics will be held during Tuesday, Wednesday and Thursday, or on Friday morning—the time assigned to the scientific work of the various sections of the Association.

The Association's Committee to Arrange for Clinic Days, in cooperation with the Subcommittee on Clinics of the local Committee on Arrangements, will issue a more detailed report later.

Marriages

CLESSON CUSHMAN ATHERTON, M.D., Elgin, Ill., to Miss Lucy Rose Thompson of Springfield, Ill., at Quincy, Ill., March 11.

PAUL TILMAN TALBOT, M.D., New Orleans, to Miss Jenny Swart Mitcheson of Marinette, Wis., March 12.

HARRY MCPHERSON BRANDEL, M.D., Los Angeles, Cal., to Miss Adele Persch of Chicago, March 22.

FRANCIS LOWELL BURNETT, M.D., Boston, to Miss Helen Read, Manchester-by-the-Sea, March 12.

RIGDON OSMOND DEES, M.D., to Miss Helen Hazel Groome, both of Greensboro, N. C., March 15.

MARK D. WEED, M.D., M. C., U. S. Army, to Miss Josephine Hufford of Reading, Pa., March 20.

RICHARD LEWISOHN, M.D., to Miss Constance R. Strauss, both of New York City, March 19.

CECIL DARNEY, M.D., Sherwood, Md., to Miss Frances Cole, at Baltimore, March 5.

Deaths

Prince Albert Morrow, M.D. the eminent dermatologist of New York City; syphilologist and apostle of sex hygiene and sanitary and moral prophylaxis; died suddenly at his home, March 17, aged 66.

He was born in Christian County, Ky., received the degree of A.B. from Princeton College, Ky., in 1865 and his medical degree from New York University, New York City, in 1874. From 1884 to 1904 he was attending surgeon to the City Hospital, New York City. He was clinical professor of venereal diseases since 1884; lecturer on dermatology in 1882 and 1883, and clinical professor of genito-urinary diseases from 1886 to 1890 when he became emeritus professor in the University and Bellevue Medical College. He was attending physician of the skin and venereal department of the New York Hospital from 1890 to 1904 and consulting dermatologist to St. Vincent's and the City hospitals.

He was a member of the American Medical Association and chairman of the Section on Hygiene and Sanitary Science in 1907; a member of the American Academy of Medicine and New York Academy of Medicine. He was also president of the American Dermatological Association in 1890-91, instrumental in the founding of the American Society for Sanitary and Moral Prophylaxis and its president since its organization in 1905; president of the American Federation for Sex Hygiene, and an active corresponding or honorary member of many societies specializing in dermatology and syphilology both at home and abroad. He was one of the founders and editor from 1882 to 1892 of the *Journal of Cutaneous and Venereal Diseases*. Chief among his contributions to the literature of his specialties are "The Atlas of Skin and Venereal Diseases," which appeared in 1888-89; "System of Genito-Urinary Diseases, Syphilology and Dermatology," in three volumes in 1892-94; "Leprosy" in 1899, and "Social Diseases and Marriage" in 1904.

Archibald Ezekiel Isaacs, M.D. New York University, New York City, 1886; a member of the American Medical Association and of the New York Academy of Medicine; clinical instructor in surgery in Cornell Medical College; a member of the staff of the Sydenham Hospital; organizer of Beth Israel Hospital and chief surgeon and honorary secretary of the medical board of that institution; died at his home in New York City, March 14, from pneumonia, aged 46.

John Herman Droge, M.D. Bellevue Hospital Medical College, 1884; laryngologist and otologist to the German hospital, Brooklyn; one of the founders of the Bushwick Hospital and of the Brooklyn Throat Hospital; a member of the faculty of the Brooklyn College of Pharmacy; died at his home in that city, March 15, aged 52. At a meeting of the board of directors of the German Hospital, March 17, resolutions of esteem and regret were adopted.

Joseph Alexander Holton, M.D. Philadelphia College of Medicine, 1852; since 1855 a resident of Centerville, Eastern Shore, Md.; for several years president of the Centerville Academy and president of the Board of School Commissioners of Queen Annes County; physician of the County Almshouse since 1871; died at his home, February 22, from senile debility, aged 87.

Nelson Gales Blalock, M.D. Jefferson Medical College, 1861; a member of the Washington State Medical Association; surgeon of volunteers during the Civil War; a pioneer practitioner of southeastern Washington; was found unconscious in his office in Walla Walla as the result of a cerebral hemorrhage, March 13, and died in a hospital, March 14, aged 77.

Frank Adelbert Jones, M.D. University of Buffalo, N. Y., 1869; a member of the American Medical Association; once president of the Monroe County Medical Society; the first member to die of the Dozen and One Club of Rochester, N. Y., which was founded twenty-nine years ago, died at his home in Rochester, March 9, from pneumonia, aged 63.

Jesse E. Wilson, M.D. Castleton (Vt.) Medical College, 1865; for fifty-six years a practitioner of Rochester, Mich.; first president of the village; a member of the school board for forty years and its president for eight years; surgeon of Volunteers during the Civil War; died at his home, March 7, from senile debility, aged 84.

Ambrose Treganowan, M.D. Philadelphia College of Medicine and Surgery, 1854; a member of the American Medical Association; a veteran of the Civil War; for three terms mayor of South Amboy, N. J., and for several years editor and proprietor of the *South Amboy Argus;* died at his home, March 10, from senile debility, aged 83.

James Edward Blair, M.D. University of Pennsylvania, Philadelphia, 1896; of Burlington, N. J.; formerly a member of the Common Council; surgeon to the Burlington County Hospital and surgeon to the Third Infantry, N. G., N. J.; died in the Medico-Chirurgical Hospital, Philadelphia, March 8, from heart disease, aged 41.

Rezin W. Lindsey, M.D. University of Nashville, Tenn., 1872; a member of the Arkansas Medical Society; a Confederate veteran; professor of medicine in his alma mater; a member of the medical staff of the Logan H. Roots Memorial Hospital, Little Rock; died at his home in that city, March 8, aged 66.

Eugene Joseph Carolan, M.D. Bellevue Hospital Medical College, 1878; for more than thirty years a practitioner of Brooklyn and for many years a member of the attending staff of the Bushwick Hospital; died at his home in Brooklyn, March 15, from heart disease, following an attack of influenza, aged 51.

Howard G. Osgood, M.D. Eclectic Medical Institute, Cincinnati, 1856; for more than fifty years a practitioner of the lower White River Valley, Ind.; assistant surgeon of Indiana Volunteer Cavalry during the Civil War; died at his home in Gosport, March 10, from heart disease, aged 78.

Benjamin D. King, M.D. Hahnemann Medical College, Chicago, 1884; city physician of Muskegon, Mich., in 1888; attending physician to the Muskegon Children's Home and chief of the maternity of Hackley Hospital; died at his home in Muskegon, March 6, from septicemia, aged 62.

James Everson Welliver, M.D. Pulte Medical College, Cincinnati, 1877; surgeon to the Miami Valley Hospital and Montgomery County Children's Home, Dayton, Ohio; president of the Dayton Board of Health since 1910; died at his home, March 14, from pneumonia, aged 61.

George Smith Adams, M.D. Hahnemann Medical College, Philadelphia, 1876; for twenty years superintendent of the Massachusetts State Hospital, Westboro; superintendent of the Givens Sanitarium, Stamford, Conn.; died at his home in Stamford, March 17, aged 64.

Sobieski H. Brady, M.D. University of Pennsylvania, Philadelphia, 1877; a member of the Medical Society of the State of Pennsylvania; for thirty years a practitioner of Lost Creek; died at his home in Girardville, March 17, from cerebral hemorrhage, aged 61.

Carlton Revere Thomas, M.D. Boston University School of Medicine, 1901; of Dorchester, Boston; died in the Homeopathic Hospital, March 8, from the effects of gasoline burns received in an explosion in his garage a few hours before, aged 35.

Charles F. Winton, M.D. University of Tennessee, Nashville, 1884; a member of the American Medical Association; for many years chief surgeon of the Baltimore and Ohio Southwestern Railway; died at his home in Cincinnati, March 13, aged 49.

Park Holland, M.D. New York University, New York City, 1884; formerly of Billings, Mont.; major M. C., N. G., Wyo., and physician and coroner of Johnson County; died at his home in Bonners Ferry, Ida., March 5, from heart disease, aged 57.

John A. Carter, M.D. Missouri Medical College, St. Louis, 1867; a veteran of the Civil War; a resident of Jasper County (Mo.) since 1865, and an extensive land owner of that county; died at his home in Carthage, March 7, from senile debility, aged 79.

William Valentine Cook, M.D. Bellevue Hospital Medical College, 1898; a member of the American Medical Association; consulting physician to the Pasadena (Cal.) General Hospital; died at his home in that city, February 16, from tuberculosis.

John T. McLaughlin, M.D. Eclectic Medical Institute, Cincinnati, 1867; for more than thirty years a practitioner of Springfield, O., and for several years jail physician; died at his home, March 13, from disease of the liver, aged 69.

Harry Francis Sloane, M.D. Rush Medical College, 1904; of Miami; a member of the Arizona Medical Association; was thrown from his buggy and kicked by his horse, dying from the injuries a few hours later, March 11, aged 37.

Royal D. Horn, M.D. University of Wooster, Medical Department, Cleveland, O., 1881; for many years a practitioner of Butler, O.; died at Lakeside Hospital, Cleveland, March 1, from pneumonia, complicating diabetes, aged 54.

Clarence Russell Grier, M.D. Jefferson Medical College, 1893; a member of the Medical Society of New Jersey; for twenty years a practitioner of Camden; died in Cooper Hospital in that city, March 12, from pneumonia, aged 42.

Edward Everett Butler, M.D. Jefferson Medical College, 1889; a member of the Washington State Medical Association; a member of the state legislature in 1903; died at his home in Anacortes, March 8, from erysipelas, aged 42.

Charles Milo Knight, M.D. Louisville (Ky.) Medical College, 1894; for several years health officer and medical examiner and a member of the school board of Chaplin, Conn.; died at his home, March 10, from diabetes, aged 56.

Edward R. Leatherbury, M.D. Jefferson Medical College, 1848; a practitioner of Onancock, Va., until 1906; for sixty years a vestryman of Holy Trinity Church; died at his home, March 1, from senile debility, aged 87.

Jacob Karn, M.D. Rush Medical College, 1884; a member of the American Medical Association; founder of the Ortonville (Minn.) Hospital and mayor of that city for a time; died in San Diego, Cal., March 15, aged 56.

James McClure, M.D. Rush Medical College, 1868; of St. Louis; a member of the American Medical Association; a veteran of the Civil War; died at the home of his brother in Vincennes, Ind., March 14, aged 71.

Cecil Z. Smith, M.D. University of Texas, Galveston, 1909; a member of the American Medical Association and president of the Collin County (Texas) Medical Association; died at his home in Anna, March 16, aged 29.

Archibald Waite Bellamy, M.D. Queens University, Kingston, Ont., 1897; a member of the Medical Society of the State of New York; died at his home in Rochester, N. Y., March 17, from pneumonia, aged 44.

James H. Potter, M.D. Medical College of Ohio, Cincinnati, 1870; a veteran of the Civil War; for many years a practitioner of Boulder County, Colo.; died at his home in Denver, about March 10, aged 69.

Augustus Greene Kimberley, M.D. New York University, New York City, 1862; surgeon of U. S. Volunteers during the Civil War; died at his home in Brooklyn, March 7, from senile debility, aged 80.

Joseph G. Waldrop, M.D. College of Physicians and Surgeons, Baltimore, Md., 1876; a member of the Medical Society of the State of North Carolina; died at his home in Hendersonville, N. C., about March 1.

Eugenia Gordon Little, M.D. University of Oregon, Portland, 1899; of San Diego, Cal.; formerly of Portland; who was operated on in San Diego, March 2, for malignant disease; died March 4, aged 49.

Francis Henry Cohan, M.D. Medical School of Maine, Brunswick, 1901; a member of the American Medical Association; of Leominster, Mass.; died in a hospital in Norwich, Conn., from nephritis, aged 36.

William D. Jones, M.D. Pennsylvania Medical School, Philadelphia; for sixty years a practitioner of Alabama and Texas; died at his home in Marshall, Tex., March 10, from senile debility, aged 96.

Leon Strauss, M.D. University of Louisville, Ky., 1877; formerly a practitioner of Louisville; died in St. Louis, Mo., March 16, aged 52.

Charles A. A. Faget, M.D. Tulane University, New Orleans, 1876; Paris Faculty of Medicine, 1880; an expert on yellow fever; died at his home in New Orleans, March 8, from diphtheria, aged 58.

Joseph E. Stegman, M.D. Beaumont Hospital Medical College, St. Louis, 1895; of Hillsboro, Mo.; died in an ambulance in St. Louis while being taken to the City Dispensary, March 7, aged 38.

William Delano Sproat, M.D. Tufts College Medical School, Boston, 1912; formerly of Concord, N. H.; intern in the Worcester (Mass.) City Hospital; died in that institution, March 4, aged 38.

Robert Alfred Moore, M.D. University of Maryland, Baltimore, 1891; a member of the Medical Society of the State of North Carolina; died at his home in Durham, February 18, aged 43.

Robert H. Taylor, M.D. Atlanta (Ga.) Medical College, 1879; a member of the Griffin (Ga.) Hospital; died at the home of his brother in that city, March 9, from angina pectoris, aged 55.

John D. Hayes, M.D. Hospital College of Medicine, Louisville, Ky., 1906; a member of the Kentucky State Medical Association; died at his home in McKee, January 18, aged 37.

John L. Walker, M.D. Vanderbilt University, Nashville, Tenn., 1881; at one time health officer of Henry County, Tenn.; died at his home in Paris, March 7, from nephritis, aged 65.

Jacob Newton Rannells, M.D. Eclectic Medical Institute, Cincinnati, 1886; a member of the Indiana State Medical Association; died at his home in Rochester, Ind., March 11, aged 52.

Arthur E. Gue, M.D. Chicago Homeopathic Medical College, 1890; formerly of Detroit and a member of the staff of Grace Hospital; died at his home in Oklahoma, Okla., March 11.

John Shartle, M.D. Jefferson Medical College, 1895; for many years a practitioner of Welsh Run, Pa.; died in his apartment in Hagerstown, Md., March 10, from tuberculosis, aged 54.

Christopher Brenner, M.D. University of Maryland, Baltimore, 1906; formerly of Bolton, Kan., and more recently of Dover, Okla.; died in Oklahoma City, March 3, aged 38.

Frank Henry Thomas, M.D. McGill University, Montreal, 1908; physician to the mines at Sand Coulee, Mont.; died at his home, February 19, from tuberculosis, aged 32.

Joseph Walter Armstrong, M.D. Drake University, Des Moines, Ia., 1903; of Des Moines; died at Mercy Hospital in that city, March 7, from acute gastritis, aged 33.

William Isaac Reece, M.D. College of Physicians and Surgeons, Baltimore, 1893; died suddenly at his home in Adamson, Okla., February 14, from heart disease, aged 41.

Walter La Forrest Marsden, M.D. Kentucky School of Medicine, Louisville, 1891; for many years a practitioner of Burns, Ore.; died in Whittier, Cal., March 1, aged 55.

Eugene Oliver Ranney, M.D. Long Island College Hospital, Brooklyn, N. Y., 1889; a veteran of the Civil War; died at his home in Orleans, Vt., January 15, aged 72.

Turner S. Riggs, M.D. Miami Medical College, Cincinnati, 1867; of McBaine, Mo.; died in the Parker Hospital, Columbia, Mo., March 3, from influenza, aged 72.

Frederick Wilhelm Alexis Bergengren (license, Massachusetts, years of practice, 1894); died at his home in Lynn, March 7, from heart disease, aged 71.

William T. Dougan, M.D. Rush Medical College, 1867; a lifelong resident and once mayor of Niles, Mich.; died at his home in that city, March 10, aged 74.

Henry R. Simon, M.D. Western Reserve University, Cleveland, O., 1896; died at his home in Warroad, Minn., March 13, from heart disease, aged 48.

Allen Henry Glover, M.D. New York University, New York City, 1889; died at his home in Knoxville, Pa., February 8, from pneumonia, aged 48.

Francis Marion Loper, M.D. Indiana Eclectic Medical College, Indianapolis, 1885; died at his home in Atchison, Kan., March 10, aged 69.

Jacob Von Valkenburg, M.D. Philadelphia University of Medicine and Surgery, 1862; died at his home in Sharon, N. Y., March 7, aged 74.

Anthony Eugene Magoris, M.D. Long Island College Hospital, Brooklyn, 1880; died at his home in Binghamton, N. Y., February 5, aged 58.

Edward Sanford, M.D. Harvard Medical School, 1852; died at his home in Attleboro, Mass., February 5, from senile debility, aged 87.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PLUTO CONCENTRATED SPRING WATER

The Commercial Possibilities in Epsom and Glauber's Salts

We have received at different times inquiries of which the following that came a few days ago is typical: "Please give me any information that you may possess as to the character of Concentrated Pluto Spring Water."

It has been said that there is as much humbug and fraud connected with the exploitation of so-called mineral waters as there is in the "patent-medicine" business. An examination of the claims made for "Pluto Water" seems to verify this statement. "Pluto Water" is said to be derived from one of three

Fig. 1.—Photographic reproduction (reduced) of the label on "Pluto Concentrated Spring Water." The only hint that the purchaser is given of the fact that Epsom salt and Glauber's salt have been added to this stuff is to be found in the line inconspicuously stating that it is "fortified with some of the natural products of the water."

springs at French Lick Springs, Indiana. But the so-called Pluto Water that may be purchased at the drug-store is not the "natural" water but "Pluto Concentrated." While it is doubtless possible to purchase the "natural" Pluto Water by ordering it specially, we believe that not one drug-store in a hundred carries anything but the so-called "concentrated" Pluto Water. The distinction between the "natural" and the "concentrated" will be referred to more fully, later.

The claims made for Pluto Water are as outrageous as those made for many "patent medicines." For instance:

"Will quickly relieve and permanently cure such afflictions as indigestion, constipation, kidney, liver and stomach trouble, rheumatism, nervous disorders, acute or chronic alcoholism, etc."

"A swift and sure specific for indigestion, constipation, kidney and liver diseases. . . ."

"Exercises a specific influence both in the prevention and cure of inflammation of the biliary tract."

"Renovates and builds tissue."

"Restores the functions of the stomach."

More than this could hardly be asked or expected even of Peruna, Duffy's Malt Whisky or Lydia Pinkham's Compound! The composition of a water that will produce such wonders is, naturally, a matter of interest. The essential constituents of Pluto Water are said to be the sulphates of sodium, magnesium and calcium, the chlorid of sodium and the carbonate of magnesium. According to an analysis published by the French Lick Springs concern, these ingredients are found in the following proportions (parts per thousand) in the "natural" Pluto Water:

Sodium sulphate (Glauber's salt)	0.68
Magnesium sulphate (Epsom salt)	0.34
Calcium sulphate	1.70
Sodium chlorid (salt)	1.99
Magnesium carbonate	0.55

To the average person the composition of the "natural" Pluto Water is largely a matter of academic interest, for practically it is only the so-called "concentrated" Pluto Water that is found on the market. The impression is given in all of the advertising matter that the "concentrated" Pluto Water is "natural" Pluto Water boiled down. The following quotations from the literature will make this plain:

"Pluto Concentrated Spring Water is the same water [as 'natural' Pluto] except that it goes through a process of boiling, eliminating the free gases, retaining the sulphates, etc., making this water in the neighborhood of ten times as strong as the natural spring water."

"It ['concentrated' Pluto] is a product of the Natural Pluto Spring Water with this exception, that in the process of concentrating it, we eliminate all gases, retaining all the solids."

The public and the medical profession, then, are led to believe that "concentrated" Pluto Water is identical with "natural" Pluto Water except that the former has been boiled down until it is ten times as strong. With this in mind, study the following analysis which the company issues as representing the composition (parts per thousand) of the "concentrated" Pluto Water:

Sodium sulphate (Glauber's salt)	50.00
Magnesium sulphate (Epsom salt)	30.97
Calcium sulphate	2.81
Sodium chlorid (salt)	2.50
Magnesium carbonate	0.35

From this, it will be seen that, even according to the company's own figures, "concentrated" Pluto differs from the "natural" Pluto in that it has more than *eighty times as much* Glauber's salt; nearly *one hundred times as much* Epsom salt; less than *twice as much* calcium sulphate; only *a trifle more* sodium chlorid and *less* magnesium carbonate than is found in the "natural."

What does this mean? It means that "concentrated" Pluto bears but a slight relation to "natural" Pluto, and it means that, for all practical purposes, "concentrated" Pluto Water is essentially a solution of Epsom salt and Glauber's salt in the proportion of three of the former to five of the latter.

The exploiters of "concentrated" Pluto are evidently marketing a solution of Epsom salt and Glauber's salt under a name that has some commercial value, and are making claims for their saline laxative that range from gross exaggeration to positive fraudulency.

It may be asked, "Why does not the Food and Drugs Act protect the public against this fraud? How can the French Lick Springs concern label a mixture of this sort 'Pluto Spring Water'?" We cannot answer these questions. The only indication that the label gives of the facts we have stated is that in small type—so placed as to be unnoticed by the average person—appears the following:

"Fortified with some of the natural products of the water."

This admission, so far as we have been able to learn, is made in none of the advertising matter.

Fig. 2.—Pluto Concentrated Spring Water. The stuff is essentially a solution of Epsom salt and Glauber's salt.

One other point is worth attention. Much is made, in the booklets the exploiters send out, of the fact that sulphur is present in the "natural" Pluto in the form of hydrogen sulphid (sulphuretted hydrogen) and sulphuric anhydrid (sulphuric acid). This ingredient, says the concern, "is by many considered the most important constituent of the water." It is hardly necessary to remind our readers that whatever sulphuretted hydrogen gas may be found in the "natural" Pluto, not a particle of it exists in the "concentrated" Pluto. The company does not explain how it is possible to have sulphuric acid in an *alkaline* water!

The following requirements regarding "The Labeling of Medicinal and Table Waters" are part of "Food Inspection Decision 94" issued by the United States Department of Agriculture:

"All waters which, though natural in the beginning have anything added to them or abstracted from them after they come from source, should either be labeled as 'artificial' or should be so labeled as to indicate that certain constituents have been added to or extracted from them. It is suggested that the word 'artificial' or the above explanation, as the case may be, should appear in as large type as the name of the water in question and on a uniform background."

One wonders whether the contempt which the label of Pluto Concentrated Spring Water shows for "Food Inspection Decision 94" bears any relation to the fact that the French Lick Springs Hotel Company has for its president—Thomas Taggart—a politician whose influence at Washington is such as to make it unnecessary for the company to worry about such trivial things as mislabeling.

ECKMAN'S ALTERATIVE

What One "Lunger" Thinks of It

A consumptive in Virginia wrote to THE JOURNAL within the last week or two ordering one of our pamphlets on "Consumption Cure Fakes." Part of his letter is so interesting that we give it:

"I might add that I am a 'lunger' and have been taking treatment in some regular sanatorium for tuberculosis for the past fifteen months with excellent results, but my *well-wishing friends* besiege me with advice on 'patent medicines,' furnish the dope for me to take and then consider me ungrateful because I strictly adhere to my physician's advice, and do not try every fake that comes on the market; in fact, one acquaintance dying of tuberculosis bequeathed me three bottles of Eckman's Alterative, *which had done him so much good*."

Correspondence

Progress in Medical Education

To the Editor:—In "Progress in Medical Education" (THE JOURNAL, March 8, 1913, p. 743) President Pritchett of the Carnegie Foundation mentions the University of Tennessee as "a university lending the shelter of its name and its charter to a medical school which it neither controls nor supports, and whose ideals of teaching are on an entirely different plane from those maintained in the other departments of its work." Inasmuch as this statement does a great injustice to our institution, I beg that you will allow me to say that the college of medicine of the University of Tennessee is an integral part of the state university and is absolutely and completely under the control of its president and board of trustees, and that no member of its faculty has any pecuniary interest in the school other than the salary which he is allowed for his services by the board of trustees. President Pritchett was evidently misinformed in regard to the status of our college of medicine; otherwise he would not, of course, have included it in the list of schools having connection with the parent institution which he deprecates.

BROWN AYRES, Knoxville, Tenn.
President, University of Tennessee.

President Ayres' letter was referred to President Pritchett, who writes:

To the Editor:—In reply to President Ayres' letter I venture to say that it would be a genuine source of regret to me to do "a great injustice" to the University of Tennessee. I do not feel, however, that the report to which he refers can be so construed. If the college of medicine at Memphis is now an integral part of the University of Tennessee, it is nevertheless true that the history of the university in medicine up to a very recent date is correctly described in this paper. Certainly the University of Tennessee would not accept either its Nashville school or the Memphis school, as it was taken over, as representing the ideals of instruction in the university itself. For the improvement in the Memphis school I tried to give full credit; and if it still continues to bring forth the fruits of medical righteousness no one will be more ready than I to rejoice over it. The university cannot, however, expect to live down its medical past in a single year.

HENRY S. PRITCHETT, New York

The Menace of Irrational Legal Processes

To the Editor:—We have all recently passed through a distressing experience here in Baltimore on account of an outrageously unjust decision of our court in a "malpractice" suit against Dr. Guy L. Hunner. My own utter disgust with the methods of the legal profession is such that if I were to act on the impulse of the moment I would abandon my surgical work, and retire to some distant field to escape as far as possible from the nauseating associations with courts and their wearing delays and postponements and their processes of flagrant injustice.

The case was this: Dr. Hunner operated on a woman with a large perinephritic tuberculous abscess. The lower pole of the kidney was calcareous and tuberculous; he did a remarkable conservative operation, resecting the diseased portion and saving a good organ which has healed perfectly and given no further trouble. The surrounding tuberculous abscess cavity naturally demanded prolonged drainage until it healed, in about seven months. During this period there was a trifling fecal drainage for a short time. Dr. Hunner in three days removed the substantial drain inserted by him at the operation, but his resident later left in the suppurating wound a tiny sliver of gauze just large enough to fill half an ordinary thimble. This appeared and was pulled out some weeks later by the physician at the patient's home in the country. A trap was then set for Dr. Hunner in the form of a letter complaining of carelessness and hoping that no axes, saws, etc., were still concealed in the wound. He replied indulgently, "I am sorry we were so careless," expressed the hope that there were no axes and saws, etc., still to be extracted and advised her as to further conduct. The patient gradually in the intervening months developed a pulmonary tuberculosis from which she now suffers to a marked degree.

Dr. Hunner gave his precious time and his faithful services over a period of more than half a year. It was alleged at the trial, and an "expert"—a doctor-lawyer—was produced to prove it, that the tiny drain caused both the fecal fistula and the pulmonary tuberculosis. It was also alleged that Dr. Hunner was responsible for leaving "the drain" in; and finally, that he ought, therefore, to be mulcted for damages. The "expert" lawyer-doctor qualified by alleging that he had had one kidney operation within the past year—a suspension of the kidney last August—"a simple operation," as he stated with becoming modesty.

All the expert witnesses testified for the defendant; namely, that the wound needed prolonged drainage and that the tiny sliver of gauze did no harm at all.

Dr. J. T. M. Finney said that its presence was beneficial as the wound needed the stimulus of a drain to hasten contraction and closure.

Dr. Thomas S. Cullen appeared with the identical piece of kidney which had been removed and showed that it was extensively tuberculous, demonstrating that inasmuch as the operation was done on a tuberculous kidney, the operation could in no way be said to have produced a condition which was antecedent to it.

I testified as to the general excellent care given the patient throughout, not only equal to the average as demanded by the court, but far exceeding it. I also showed how ridiculous was the contention that the wee piece of gauze in a wound which must suppurate until it closed could hurt the patient and induce any grave sequelae.

There were manifestly three things to be considered by the jury:

1. Did Dr. Hunner treat the patient properly? Did he do her any harm?

2. If his assistant introduced the tiny drain, was Dr. Hunner responsible for his act?

3. If these points were decided against Dr. Hunner, what damages should be assessed?

All the men who knew, the experts of real experience, as contrasted with the lonely pseudo-expert, testified emphatically that Dr. Hunner had treated the patient with the utmost skill and that she had in no way suffered, but was in every way benefited by the treatment.

The second point which the plaintiff sought to establish, namely, that the surgeon is responsible for all that his resident does, although he may have no control over his appointment to the hospital, was decided by the judge in the affirmative on the basis of a law sixty years old, framed even before the birth of modern surgery.

The third point—damages—naturally fell out of consideration if the first—no harm done—was decided in the doctor's favor.

In spite of the overwhelming testimony and of all the evidence and facts against the plaintiff's contention, the jury actually decided against Dr. Hunner and awarded $1,000 damages, a penalty of about $2,500, including court costs—this in the twentieth century in our enlightened land, with one of the best of judges, Judge Hemsler, on the bench, and a jury made up of men of exceptional character and intelligence. They simply did not understand the case, and acted on their sympathies. The whole court seemed muddled, like an infant-school solving a difficult mathematical problem. That which was transparent to every surgeon, and the very A B C of his daily practice, was to them a mysterious and impenetrable darkness. So, swayed by their sympathy, they gave the verdict in favor of the plaintiff.

It is evident that the best interests of the medical profession and therefore of the public are gravely menaced by such subversive threatening and irrational legal processes. The first thought of the newspapers has been that perhaps men of eminence will be less willing in the future to serve the poor; but the first effect is not here. I have already reaped the first crop of this suit in my own office. A patient whom I recently relieved from a life suffering by taking out a ureteral calculus casually remarked to an associate as she left for her home, "It is well that Dr. Kelly succeeded, for had he failed my husband would have been ready to sue him."

Another patient cured of a cancer of the face by radium developed a trifling transitory erythema; he at once forgot the inestimable service rendered at a nominal cost and assumed a harsh, bitter, criticizing tone. Another referred to me with a recurrent cancer of the rectum for radium treatment, who is probably recovering, under the best care I can give him, became violently incensed and threatening because of some fancied neglect.

In other words, such trials, with the publicity attending them, circulating unjust and distorted criticisms of the work of our best men, and implying that carelessness and neglect of patients is habitual, tend to influence the public against the profession and to make patients eager to search for fancied wrongs and overanxious to assess large damages for imaginary neglect.

I cannot see any solution of this distressing question which will not fall crushingly on the public. I cannot conceive of a greater misfortune to a community than that the administration of justice should come to depend, not on principles of righteousness, not on a rational determination of right or wrong in each individual case, but rather on the sharpness of the wits of lawyers contending for a prize and determined to have it by fair means or foul.

We see here the outcome of our nation-wide utter neglect in attending to the ethics and the morals of the communities in which we live, the natural sequence of being too busy with the subordinate questions of "science" and making money to think of the infinitely more important questions of ethics.

HOWARD A. KELLY, M.D., Baltimore.

The Grant Method in the Surgery of Epithelioma of the Lip

To the Editor:—In THE JOURNAL (Feb. 15, 1913, p. 507) is an article on "Operation for Epithelioma of the Lower Lip," by Dr. H. A. L. Ryfkogel of San Francisco. The operation is described as not being new, but as having been developed in Dr. Ryfkogel's service by combining the methods of other operators.

Kindly permit me to say that the diagrams and descriptive formation of flaps are a reproduction of my original operation for "Cancer of the Mouth," first published in the *Medical Record*, New York, March, 1899, and more fully elaborated, illustrated and read before the Section on Surgery of the American Medical Association in July, 1905, at Portland, Ore. It was published in THE JOURNAL, Sept. 30, 1905, p. 962. It is of course possible that Dr. Ryfkogel never read this article.

W. W. GRANT, M.D., Denver.

A proof of the above was sent to Dr. Ryfkogel, who replies:

To the Editor:—As any one can readily verify by looking at Dr. Grant's and my articles on epithelioma of the lip, his statement that my diagrams and reading matter are reproductions of his is untrue. In fact they bear no more resemblance to his than they do to Stewart's, Dieffenbach's and others.' I have read Dr. Grant's article and have performed his operation. My objection to it was that it made a lip too tightly stretched; in fact, he himself mentions the frequent necessity of using tension sutures. In the operation performed in my clinic, even when the whole lip is removed, the flaps fall loosely into place without tension. Dr. Grant's flaps are triangular and are swung into place; mine are quadrilateral and are slid together. I should like again to emphasize the fact that there is nothing new in the operation described by me, but that it is rather an assembly of several technics which has given us so much satisfaction that we thought it worth recording. The same statement can also be made of Dr. Grant's operation. For other differences between the two articles I must refer the reader to the original communication.

H. A. L. RYFKOGEL, M.D., San Francisco.

A proof of the above was sent to Dr. Grant, who replies:

To the Editor:—In reply to Dr. Ryfkogel's note, kindly permit me to quote from my article as formerly published in THE JOURNAL, as follows:

"When half or more of the entire lip is removed, I am in the habit of perfecting and completing the operation by making an incision from each angle of the mouth backward and slightly downward half to one inch in length, down to the buccal mucous membrane, and then separating the latter from overlying tissues above, below and posteriorly to the extent of half an inch. The lip above and below is now beveled from the inner border in order to conform to natural conditions and also to make it easier to cover. The mucous membrane is now divided in the middle line and the flaps united to the skin by one continuous suture of chromicized catgut."

As to tension, my language in the article is as follows: "if the tension is great or considerable from the amount of tissue excised, I am in the habit of inserting one mattress suture." There is not a line as to the "frequent necessity" of using tension sutures.

W. W. GRANT, M.D., Denver.

A Method of Making Buttermilk

To the Editor:—The use of buttermilk for several days or a week, to the exclusion of sweet milk, eggs or other food, is a simple and safe method of relieving the stomach which has proved useful and effective in many cases, especially when large quantities of sweet milk have been taken for a long period. It will be possible to return then to the former diet without difficulty.

The physician is often asked where the buttermilk may be obtained. When a supply of known purity is not available from a dairy, it may interest some to know that there are small glass churns on the market with a capacity of from 1 to 4 quarts, for use in the home. By taking new whole milk,

allowing it to thicken in a warm room for twenty-four hours and then churning for from five to eight minutes you will have, after removing the small amount of butter which accumulates on the dasher, a fresh, evenly distributed, curdy buttermilk which is palatable and much superior to the artificial product made from lactic acid tablets.

ALEXANDER ARMSTRONG, M.D., White Haven, Pa.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FRUITOLA AND TRAXO

To the Editor:—Could you send me any information concerning a "gall-stone cure" named "Traxo," which I believe is manufactured in California? A. M., Texas

ANSWER.—Our correspondent doubtless refers to a nostrum exploited in connection with the fraud, "Fruitola," both of which were exposed in THE JOURNAL, Sept. 24, 1910. The matter has been reprinted in a pamphlet entitled "Fake Gall-Stone Cures" (price 4 cents) and also appears in the second edition of "Nostrums and Quackery." Fruitola and Traxo are both put up by the Pinus Medicine Co., Los Angeles: Fruitola as a "cure" for gall-stones, and Traxo as a "tonic." Fruitola, as stated in THE JOURNAL article, consists of two parts, a liquid and a powder. The liquid was found to be essentially olive oil flavored with anise; the powders were found to be Seidlitz powders. The state chemists of Kansas analyzed Traxo and reported that in addition to 20 per cent. of alcohol it consisted mainly of taraxacum (dandelion) and cascara with a small amount of chloroform and soluble alkaloid.

INFORMATION CONCERNING A COPPER-MINING COMPANY

To the Editor:—Can you give me any information in regard to Haynes Copper Company, 82 Beaver Street, New York, or refer me to any one who can? The stuff, of course, has all the earmarks of a fake, and I wish to save a medical friend from making a foolish investment. W. P. BURDICK, M.D., Kane, Pa.

ANSWER.—The following is digested from an article in the "Copper Handbook." This book is considered fairly reliable, but one may well bear in mind that it probably gives the best possible version of the matter.

The main office of the company is 301 Columbia Trust Building, Los Angeles; C. B. Stranahan, manager. The company was organized in 1906 under the laws of the state of Arizona as successor to the Jerome Mines Development Co., with a capital of 2,000,000 shares, $1 per share. The latest statistics given are of 1910; they have eight veins patented—an area of 160 acres; there are various veins carrying a variety of ores estimated by the company to average 6.2 per cent. copper, 3 ounces silver and $1.60 gold per ton. Sulphids were found about July, 1910, and the management hopes to find a continuation of the United Verde ore bodies. Considerable drilling and construction have been done. The mine is wet, causing occasional interruptions before the installation of the triplex pump. There are twelve buildings on the property.

SERODIAGNOSIS OF SYPHILIS—WORKS ON THE DUCTLESS GLANDS AND ON IMMUNITY

To the Editor:—1. Please tell me where I can obtain material for the Noguchi skin test for syphilis. 2. Please refer me to some works on the ductless glands and on immunity.

M. B. MCCAUSLAND, M.D., Imlay City, Mich.

ANSWER.—1. The Noguchi test for syphilis is supplied by H. K. Mulford Co., Philadelphia. See N. N. R., 1913, p. 237.

2. The following are good books on these subjects:

Vincent, S.: Internal Secretions and the Ductless Glands, Longmans, Greene & Co., New York, price $3.50.

Fraser, E. T.: A Manual of Immunity, Macmillan Co., New York, price $1.25.

Simon, C. E.: Study of Infection and Immunity, Lea & Febiger, Philadelphia, price, $3.25.

Ricketts, H. T.: Infection, Immunity and Serum-Therapy, American Medical Association, price, $2.

BEEBE'S THYROID SERUM

Dr. A. T. Downing, Littleton, N. H.: We summarized the facts March 23, 1912, p. 880.

DOUBTFUL CAUSE OF DEATH OF INFANT

To the Editor:—I wish to report a recent case of an infant's death. It seems extremely interesting to me as I cannot find anything in the literature of a similar nature, while several physicians with whom I have discussed the case are likewise agreed. The family history of the father and the mother was possibly tuberculous; otherwise negative. The mother, a primipara aged 28, apparently in good health and of ruddy complexion, went through pregnancy with nothing to indicate any deviation from the normal, and was delivered at full term (low forceps left occipito-anterior) of an apparently normal girl baby weighing 8 pounds. Both mother and child did nicely until the morning of the fifth day, when the baby was found dead in its crib about an hour after nursing. There was nothing to indicate the cause of death. Autopsy showed the small intestine in a condition of complete collapse and the large intestine enormously distended. Macroscopically the peritoneal surface showed small yellowish-white spots dotting the greater part of the large bowel. The mucous membrane showed nothing abnormal macroscopically. A section of the large bowel (about 6 inches long) was sent to a laboratory with a returned diagnosis of congenital absence of follicles of the large intestine, making it incompatible with extra-uterine life.

I would like to hear from some one who has had or heard of such a case. It might be well to add that the patient was in the hospital and that the baby nursed its mother with apparent satisfaction. H. E. THOMPSON, M.D., Bethlehem, N. H.

ANSWER.—We are of the opinion that the condition noted should not be regarded as the cause of death.

NO AUTOMOBILE NUMBER THIS YEAR

To the Editor:—Will there be an Automobile Number this year? J. E. ASAY, M.D., Rock Island, Ill.

ANSWER.—No.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 7-8. Sec., Dr. John Wix Thomas.

CALIFORNIA: San Francisco, April 1. Sec., Dr. Charles B. Pinkham, 929 Butler Building.

COLORADO: 612 Empire Building, Denver, April 1. Sec., Dr. David A. Strickler.

IDAHO: Boise, April 1. Sec., Dr. O. J. Allen, Bellevue.

ILLINOIS: Armory Battery B, Chicago, April 29-May 1. Sec., Dr. James A. Egan, Springfield.

MINNESOTA: State University, Minneapolis, April 1-4. Sec., Dr. Thomas S. McDavitt, Lowry Building, St. Paul.

MONTANA: The Capitol, Helena, April 1. Sec., Dr. W. C. Riddell.

NEW MEXICO: Santa Fe, April 14. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, April 8. Sec., Dr. John W. Duke, Guthrie.

RHODE ISLAND: State House, Providence, April 3. Sec., Dr. Gardner T. Swarts.

WEST VIRGINIA: Huntington, April 14. Sec., Dr. H. A. Barbee, Point Pleasant.

A PREMEDICAL COLLEGE YEAR

Recognizing the need of a better training for those who are to study medicine than that furnished by the usual high school, the Council on Medical Education of the American Medical Association, in 1904, prepared what was termed an "ideal standard" which suggested, that, in addition to an accredited four-year high-school course, a year in physics, chemistry and biology and a reading knowledge of a modern language, preferably German or French, be made the minimum requirement for admission to medical colleges. It was understood that this additional year's work might be taken either in a college of liberal arts or in a preliminary year given by the medical school itself. At the annual meeting of the American Medical Association at Atlantic City in June, 1912, the House of Delegates adopted a recommendation instructing the Council on Medical Education to include in Class A (among acceptable colleges) after Jan. 1, 1914, only medical schools which require for admission not less than one year of college credits in chemistry, biology, physics and a modern language.

At a regular meeting held in Chicago, Feb. 23, 1913, the Council on Medical Education adopted a resolution that the work of the preliminary year should correspond in excellence and in content at least with the work in the freshman year in standard colleges and universities. A subcommittee was appointed to prepare a detailed outline of the minimum requirements for the preliminary year's work.

At its annual meeting held Feb. 26, 1913, the Association of American Medical Colleges appointed a committee, with power to act, to cooperate with the committee of the Council on Medical Education in the preparation of an outline of minimum requirements for the preliminary year's work, thereby going on record as favoring this advance requirement.

At a meeting of the subcommittee of the Council on Medical Education Saturday, March 22, the following minimum requirements for admission to the proposed preliminary college year were adopted:

ADMISSION TO THE PRELIMINARY COLLEGE YEAR

A. For admission to the preliminary college year, students must have completed a four-year course of at least fourteen units in a standard accredited high school, or have its equivalent as demonstrated by an examination, and a transcript of the student's work should be secured directly from the principal of the high school by the college authorities and kept on file.

B. The required and elective subjects for which credits for admission to the preliminary college year may be accepted are shown in the following schedule:

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS, CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO THE PRELIMINARY COLLEGE YEAR LEADING TO THE MEDICAL COURSES

SUBJECTS.	UNITS.	REQUIRED.	ELECTIVE.
ENGLISH			
READING AND PRACTICE	2	2	...
Study and Practice	1	...	1
MATHEMATICS			
ALGEBRA TO QUADRATICS	1	1	...
Algebra (Quadratic Equations, Binomial Theorem and Progressions)	½	...	½
PLANE GEOMETRY	1	1	...
Solid Geometry	½	...	½
Trigonometry	½	...	½
LATIN			
GRAMMAR AND COMPOSITION	1	1	...
CAESAR	1	1	...
Cicero	1	...	1
Virgil	1	...	1
Cornelius Nepos	1	...	1
Greek			
Grammar and Composition	1	*	1
Xenophon	1	...	1
Homer	1	...	1
GERMAN (OR FRENCH)			
ELEMENTARY	2	2	...
Intermediate	1	...	1
French (or German)			
Elementary	2	**	2
Intermediate	1	...	2
Spanish			
Elementary	2	...	2
Scandinavian			
Elementary	2	...	2
HISTORY			
AMERICAN HISTORY AND CIVIL GOVERNMENT	1	1	...
Greek and Roman History	1	...	1
Medieval and Modern History	1	...	1
English History	1	...	1
Science †			
Botany and Zoology, each	1	...	1
or Biology	1	...	1
Chemistry	1	...	1
Physics	1	...	1
Physiography	½	...	½
Physiology	½	...	½
Agriculture	1	...	1
Drawing	1	...	1
Manual Training	1	...	1
Domestic Science	1	...	1
Music			
Appreciation or Harmony	1	...	1
Total	38½	9	29½

A *unit* is the credit value of at least 36 weeks' work of 4 or 5 recitation periods per week, each recitation period to be of not less than 40 minutes. In other words, a unit represents a year's study in any subject in a secondary school constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

Required Branches: Of the 14 units of high-school work the subjects in capitals aggregating 9 units are required. Other work to the amount of at least 5 units may be made up from any of the other subjects of the above schedule.

* Two units of Greek may be substituted for the two required units of Latin.

** Two units of French may be substituted for the two required units of German.

† Credentials of each science course must include evidence of laboratory work.

The Preliminary College Year

At a joint meeting of the committees representing the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association held March 22, 1913, and with the advice of Dr. Kendric C. Babcock, higher education expert of the United States Bureau of Education, the following requirements were adopted for the preliminary college year:

A. The preliminary college year shall extend through one college session of at least thirty-two weeks of actual instruction, including final examinations.

B. In excellence of teaching and in content, the work of this preliminary college year shall be equal to the work done in the freshman year in standard colleges and universities.

C. This preliminary college year shall include courses in physics, chemistry, biology and German or French, each course to embrace at least eight semester hours of didactic and laboratory work in each subject as shown in the following schedule, provided that a student may satisfy the requirement of physics in presenting one unit of high-school physics and completing a half year of college physics which continues and does not duplicate the work done in the high school:

SCHEDULE

Subject.	Lectures or Recitations Per Week	Laboratory Periods * Per Week	Total Hours Per Semester	Total Hrs. Per Year.
Physics, 1	2	2	4	8
Chemistry, 1	2	2	4	8
Biology, 1	2 or 3	2 or 1	4	8
German or French, 2	4 or 3	.....	4 or 3	8 or 6
Totals	10	6 or 5	16 or 15	32 or 30

* Each laboratory period must extend over at least two hours.

D. In medical colleges planning to give the work of the preliminary year, provision should be made for full-time expert teachers in the various subjects. Sufficient equipment should be provided to enable the students to do the work intelligently—in amount such as will compare favorably with the equipment for these courses in standard colleges and universities.

E. It should be remembered that the chief object of the work of the preliminary college year is to provide the student with a training that will enable him to enter more readily and intelligently on the study of the fundamental medical sciences in the medical school.

Illinois September Report

Dr. James A. Egan, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, Sept. 24-26, 1912. The number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 154, of whom 112 passed and 41 failed. One candidate did not complete the examination. The following colleges were represented:

College	PASSED	Grad. Year	Examined Total No.
College of P. & S., San Francisco		(1903)	1
George Washington University		(1911) (1912)	2
Bennett Medical College	(1910)	(1911, 2) (1912, 18)	21
Chicago Coll. of Med. and Surg.	(1911, 3)	(1912, 19)	22
Chicago Homeopathic Medical College		(1892)	1
Hahnemann Medical College and Hospital		(1912)	4
Jenner Medical College		(1912)	5
Northwestern Univ. Med. School	(1903) (1911)	(1912, 3)	5
Reliance Medical College		(1911)	2
Rush Medical College		(1911) (1912, 9)	10
College of P. and S., Chicago	(1911, 3)	(1912, 16)	19
University of Louisville		(1912)	1
Louisville Medical College		(1896)	1
Tulane University of Louisiana		(1906)	1
Johns Hopkins University		(1912)	1
Harvard Medical School		(1911)	1
Tufts College Medical School		(1903)	1
St. Louis University		(1912)	1
American Medical College, St. Louis	(1911)	(1912, 4)	5
Barnes Medical College		(1911)	1
University of Buffalo		(1912)	1
Jefferson Medical College		(1912)	1
University of Pennsylvania		(1869)	1
Milwaukee Medical College		(1912)	2
Trinity University, Canada		(1897)	1
University of Toronto		(1911)	1

FAILED

Northwestern University Medical School	(1912)	1
College of P. & S., Chicago	(1911) (1912, 3)	4
Chicago College of Medicine and Surgery	(1910) (1911, 3) (1912, 4)	8
Bennett Medical College	(1911) (1912, 5)	6
College of Medicine and Surgery, Physiomedical, Chicago	(1908) (1909) (1910)	3
Hahnemann Medical College and Hospital, Chicago	(1893) (1910) (1912, 4)	6
Hering Medical College	(1912)	2
Illinois Medical College	(1911)	1
Jenner Medical College	(1912)	1
Reliance Medical College	(1911)	2
American Medical College, St. Louis	(1912)	1
Barnes Medical College	(1912)	1
St. Louis Coll. of P. and S.	(1908) (1910, 2)	3
National University, Greece	(1908)	1
University of Modena, Italy	(1903)	1

Ohio December Examination Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports the written and oral examination held at Columbus, Dec. 10-12, 1912. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 20, of whom 16 passed and 3 failed. For one candidate the decision is pending. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1912)	84.2, 87.6
Cleveland College of P. and S.	(1912)	75.8, 79.6, 81
Western Reserve University	(1912)	84.7
Cleveland-Pulte Medical College	(1912)	75.6, 78.9
Ohio-Miami Medical College	(1912)	77.1, 86.6
Starling-Ohio Medical College	(1912)	77.6
Toledo Medical College	(1912)	76.3
University of Pennsylvania	(1910) 89.4; (1911)	87.2
University of Toronto, Ontario	(1911)	83.1
Royal University of Naples, Italy	(1910)	78.1

FAILED

Harvard Medical School	(1910)	74.2
Ohio-Miami Medical College	(1912)	73
Eclectic Medical College, Cincinnati	(1911)	73.7

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

THE PRESENT LEGAL STATUS OF OSTEOPATHY

In THE JOURNAL[1] over three years ago, a summary of the situation then existing regarding osteopathy appeared as a part of the special matter on medical education. The situation has changed somewhat since that time, so that an up-to-date summary of the situation seems advisable, on account of many requests received for information on this point. The present time is particularly favorable for such a summary, as osteopathic legislation has apparently reached its high-water mark. Some form of regulation is now on the statute-books in forty-one of forty-nine jurisdictions, including the District of Columbia. All of this legislation has been enacted in the last twelve years, Connecticut, which in 1901 enacted a law creating a separate board of osteopathic examiners, being the first state to take action. The classification of states with reference to this subject naturally divides them into (1) those having laws authorizing a separate osteopathic board; (2) those having laws adding an osteopath to the membership of existing boards; (3) those with laws authorizing the existing board to examine and register osteopaths as such, and (4) those having no specific regulation on the subject.

1. The states which have established separate examining boards with the date of the passage of the law are twenty in number, being Connecticut, 1901; Arkansas, Michigan and Minnesota, 1903; Vermont, 1904; Tennessee, New Mexico, Montana, 1905; Idaho, Missouri and South Dakota, 1907; Louisiana, 1908; Georgia, North Dakota, Nebraska, Florida, 1909; California, 1910; New Hampshire and Pennsylvania, 1911, and Kansas, 1913.

2. The eleven states which amended the existing medical practice acts by including an osteopathic member on the state examining board are Iowa, 1902; Wisconsin, 1903; Kentucky, 1904; Indiana, 1905; New York, Oklahoma, Oregon, Texas, Utah, 1907; Washington, 1909, and Massachusetts, 1911.

3. In nine states osteopaths are examined and registered as such by the state board of medical examiners. These are South Carolina, 1904; Wyoming, 1905; Ohio, 1906; West Virginia and Delaware, 1907; North Carolina, 1909; New Jersey and Colorado, 1910; Virginia, 1911.

4. In seven states and the District of Columbia there is no specific regulation. These are Alabama, Arizona, Illinois (in which osteopaths are licensed by the state board of health under the drugless healers clause), Maine, Mississippi, Nevada and Rhode Island. In one state, Maryland, they are specifically exempt from the operation of the medical practice act.

Regarding the legal status of osteopathy in the courts, in the following states it has been declared to be the practice of medicine, either by statutory enactment or by judicial decision: Alabama, Arizona, California, Delaware, Indiana, Iowa, Kentucky, New York, Ohio, Texas, Utah, Virginia, West Virginia, Wisconsin and Wyoming. In the following states it has been specifically declared not to be the practice of medicine: Arkansas, Colorado, Connecticut, Georgia, Idaho, Illinois, Kansas, Louisiana, Michigan, Minnesota, Missouri, Montana, Nebraska, North Carolina, Pennsylvania, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee and Vermont. We have therefore the situation of osteopathy being the practice of medicine in fifteen states, while there are twenty-one states in which it is not.

1. Aug. 14, 1909, p. 582.

LEGISLATIVE NOTES

COLORADO

Governor Ammons has signed the bill providing for registration of tuberculosis.

ILLINOIS

A bill, providing a bureau of child welfare, modeled after the federal Bureau of Child Welfare, has been introduced. It creates a child welfare commission of three members.

KANSAS

The governor has permitted the chiropractic bill to become a law without his signature and has signed a bill providing for a state board of osteopaths. He has also permitted a sterilization bill to become a law without his signature. The enactment of the chiropractic bill is the first definite result which has been secured by this cult, after four or five years of effort, Kansas being the only state in which such a measure has so far become a law.

WYOMING

The following bills have been passed and signed by the governor: a bill providing for the inspection and sanitation of any place where food products are to be handled; to be enforced by the state dairy, food and oil commissioner, and a bill regulating the sale of habit-forming drugs. This law prohibits the sale of such drugs to any person, except on prescription of a licensed practicing physician, such prescriptions not to be refilled, and to be open to inspection by the State Board of Pharmacy. Practitioners of medicine are forbidden to prescribe such drugs for any person not under their treatment. Legally qualified practitioners are permitted to prescribe in good faith not to exceed 4 grains of cocain, morphin or their derivatives within any consecutive periods of twenty-four hours, and not to exceed 24 grains of chloral. The osteopathic bill was killed in the senate.

The Best Sign of Bronchial Obstruction.—I regard loss of vocal fremitus over an area still resonant, or even tympanitic, as one of the earliest and best signs of bronchial obstruction—a wrinkle I got many years ago from my old teacher and friend, Dr. Glynn.—John Hill Abram in *Clin. Jour.*, London.

Book Notices

DIGEST OF THE LAWS AND REGULATIONS IN FORCE IN THE UNITED STATES RELATING TO THE POSSESSION, USE, SALE AND MANUFACTURE OF POISONS AND HABIT-FORMING DRUGS. By Martin I. Wilbert and Murray Galt Motter. Paper. Price, $0.25. Pp. 278. Public Health Bulletin No. 56. Washington; Superintendent of Documents, 1912.

Few of the recently issued government publications are destined to attract greater attention on the part of physicians and pharmacists than this bulletin. As a plea for greater efficiency, greater uniformity and greater simplicity in laws and regulations relating to the manufacture, sale and use of poisons and habit-forming drugs, it comes at an opportune time. No one can even casually review the tremendous number of laws reflected in this bulletin without appreciating that we are indeed a law-burdened and yet a lawless people. It is pointed out, for instance, that in many of the states the anti-narcotic laws are so comprehensive that every retail druggist, and in some states practically every physician, would be subject to fine or imprisonment were an earnest attempt made to execute the legislation on the statute-books. In other states the laws are so burdened with exceptions and provisos as practically to nullify the evident intent of legislation to control the sale or use of potent or habit-forming drugs; and in all states, quite regardless of the efficiency of the state laws themselves, legislation is to a considerable extent inoperative because of the inability of state officials to control or even to learn of the extent to which the several proscribed drugs are being sent into the state.

In addition to the laws dealing directly with restrictions on the sale of poisons and narcotic drugs, this bulletin reviews those restricting the occurrence of poisons in foods and other articles of commerce and those relating to the practice of pharmacy and the standards for drugs. The nature and extent of the laws relating to occupational intoxications are indicated. In this connection it is perhaps not necessary to do more than suggest that there is probably no form of calamity that can be so readily prevented by a wise and efficient enforcement of law as the now all-too-numerous occurrence of fatal poisoning, either acute or chronic, due to the ingestion or the inhalation of poisonous substances. A table showing the comparative number of cases of suicide and the number of deaths from acute and chronic poisoning, compiled from the mortality statistics of the census bureau, shows a total of more than 8,500 deaths from various forms of poison reported for the year 1910 alone. Even this comparatively large number is merely a fraction of all the deaths due directly or indirectly to the use of poisons in one form or another, but should suffice to demonstrate the immediate need for a more practical solution of the question of legislation relating to the manufacture, use and sale of poisons of all kinds. An earnest and consistent effort should be made to bring the laws now on the statute-books of the several states into accord so as to provide reasonable but not directly burdensome restrictions on the manufacture, sale and use of all drugs that are in any way dangerous to human life. This bulletin should prove of value to physicians, pharmacists, manufacturers and officials entrusted with the enforcement of the existing laws.

THE CHEMIC PROBLEM IN NUTRITION (MAGNESIUM INFILTRATION). A Sketch of the Causative Factors in Disorders of the Nutrition as Related to Diseases of the Nervous System. By John Auldc, M.D., Demonstrator of Physical Diagnosis and Clinical Medicine, Medico-Chirurgical College, Philadelphia. Cloth. Price, $3. Pp. 410, with 4 illustrations. Philadelphia: John Auldc, M.D., 1305 Arch St., 1912.

We would hesitate to furnish space for a reference to this hodgepodge of fact and ridiculous fancy, jumbled together into the semblance of serious statement, were not the title sufficiently misleading to attract some unsuspecting reader whom we hope hereby to disillusionize. "Magnesium infiltration" is presented as the unseen, unrecognized "insidious ailment" which "affects the infant in arms as well as the octogenarian, the factory operative and the millionaire," etc. "It secures entrance to every sick-room, to every hospital," etc., etc. A few quotations will suffice to exemplify the sort of pseudo-science perpetrated in the guise of a legitimate treatise, and make further comment unnecessary. "Magnesium infiltration may be defined as an abnormal condition in which the cellular structures are surcharged with magnesium, with coincident depletion of the lime content" (p. 4). "Magnesium infiltration is essentially a disorder of the nervous system. Its development depends on various conditions. Thus, it may appear as the actual disease, as in neuritis, neuralgia, angina pectoris, locomotor ataxia, arteriosclerosis, or whenever the nerve-supply is surcharged with magnesium—effecting insulation, by chemic transformation" (p. 8). "Bearing in mind that this condition will change the capacity for imbibition (absorption), lead to a disturbance in the structure, and further, that it will interfere with the uninterrupted transmission of nerve impulses, the magnesium infiltration (deposits), acting as a resistance coil to the electric current—which supplies the energy for such transmission—the phenomena attending bowel troubles in children will be readily understood" (p. 9). Elsewhere we are told that "magnesium oxid is produced within the body by the action of oxidase on magnesium salts" (p. 44); and again that "treatment should be directed to reestablish the normal physiologic equilibrium as regards alkalescence, which would thus prevent nerves from becoming 'electroplated' with magnesium oxid" (p. 44). Enough of a "system" which includes everything from jaundice to insanity, old age to tonsillitis in one scheme! Huxley once wrote that science commits suicide the moment it adopts a creed.

EIGHTEENTH ANNUAL REPORT OF THE CRAIG COLONY FOR EPILEPTICS, Sonyea, Livingston County, N. Y. Paper. 1912.

This report of the oldest and most important of the public institutions for epileptics reveals many shortcomings in the way of buildings and equipment in the institution, but is a highly interesting document in that the pathologist's report furnishes considerable valuable information on which to base further study of the etiology of epilepsy. While the statistics of the colony in regard to recovery do not seem to be encouraging, the pathologist's report largely explains the reason for this. Notable among the findings are that a considerable percentage of epileptics have various congenital deformities or developmental defects, not, however, conforming to any particular classification; that various forms of encephalitis bearing a relation, perhaps, to the infectious diseases are frequently found; that constipation or intestinal stasis with consequent probable intestinal toxemia constantly obtrudes itself on the attention; that nephritic changes are present in a large number of cases, due probably to heightened blood-pressure and congestion during attacks, it being found that albuminuria accompanies these attacks, and in case of death during or immediately following an attack intense congestion of the kidneys is always found; the brain atrophies of various regions as well as internal hydrocephalus are frequently found and also meningeal adhesions and thickenings, but neither these nor the tumors found could be ascertained to bear any constant relation to the epilepsy. The report has numerous illustrations of the colony and of a number of brain specimens.

THE HUNTERIAN LECTURES ON COLOR-VISION AND COLOR-BLINDNESS. Delivered before the Royal College of Surgeons of England in February, 1911. By Prof. F. W. Edridge-Green, M.D., F.R.C.S. Cloth. Price, $1.50 net. Pp. 76. New York: Paul B. Hoeber, 1912.

For many years Edridge-Green has been the recognized English authority on color-vision; he has probably devised the most accurate and most practical tests for the detection of color-blindness that we have. This little volume is the substance of two lectures before the Royal College of Surgeons last year. The first is an exposition of the author's well-known theories of color-vision and color-blindness, and contains a number of references to his other writings on these subjects. The paragraphs on the "evolution of the color-sense" are interesting and form a good foundation for what follows on the "facts of color-blindness." The second lecture is devoted to the detection of color-blindness, and contains descriptions and illustrations of the author's lantern, his so-called "classification test," his pocket test, and color-perception spectrometer

A TREATISE ON DISEASES OF THE HAIR. By George Thomas Jackson, M.D., Professor of Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, and Charles Wood McMurtry, M.D., Instructor in Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University. Cloth. Price, $3.75 net. Pp. 366.

The first edition of Dr. Jackson's work on the diseases of the hair appeared in 1887, and since that time it has remained the fullest and best book on the subject. In fact, it has been the only complete treatise on the subject. The work before us, while a lineal descendant of Jackson's treatise, is put forth as a new work; and a new work it is. The diseases of the scalp and hair—cosmetic diseases though they are for the most part—have received the most exhaustive and painstaking investigation in the last twenty years. Under the leadership of Unna in Germany and Sabouraud in France, the subject has assumed a new meaning and a vastly increased interest. Sabouraud has made the subject of tinea one of the large topics in microbiology. In no treatise has the great amount of work in the mycotic diseases of the hair and scalp hitherto been collected into a compact available form, and if this new work had no other reason for existence, the part on the trichophyton diseases would make it valuable. In no other place, except Sabouraud's work in French, is there collected the knowledge on this topic. In addition to this, the work is equally complete on the other diseases of the hair and scalp; that as a whole it is satisfactory goes without saying from the previous editions. Dr. Jackson has made this field peculiarly his own, and in it no other dermatologist—at least among the English-speaking—approaches his authority. His book, giving as it does an authoritative and complete statement of the subject, constitutes a valuable service to the profession.

A CLINICAL MANUAL OF THE MALFORMATIONS AND CONGENITAL DISEASES OF THE FETUS. By Prof. Dr. R. Birnbaum, Chief Physician to the University Clinic for Women at Göttingen. Translated and Annotated by G. Blacker, M.D., B.S., F.R.C.P., Obstetric Physician to University College Hospital, London. Cloth. Price, $5. Pp. 379, with 66 illustrations. Philadelphia: P. Blakiston's Son & Co., 1912.

The author has collected information pertaining to malformations and some congenital diseases—anatomic, physiologic, pathologic and clinical—and made a book of it. Those congenital conditions, such as syphilis, which are fully dealt with in books on obstetrics, etc., are not included. Malformations are taken up in detail, as for instance, their causation and classification, the arrest of development of the whole embryonic rudiment, defective development of the spinal canal, brain, face, neck, thorax and its contents, digestive apparatus and other abdominal viscera, genitalia, bony skeleton, skin, etc. The final chapter discusses the legal rights of monsters. The book is well written and the illustrations, although not numerous, are well made. The many references to the literature cannot fail to prove of value. The book certainly fills a long-felt want because heretofore many books had to be consulted to gain even a small amount of the information which has been collected in this book.

SURGICAL OPERATIONS WITH LOCAL ANESTHESIA. By Arthur E. Hertzler, M.D., Surgeon to the Halstead Hospital, Halstead, Kan. Cloth. Price, $2 net. Pp. 205, with 104 illustrations. New York: Surgery Publishing Company, 1912.

The articles on this subject which appeared serially in a medical journal have been collected and form the basis of the text of this book. Local anesthesia is treated exhaustively, the author being an enthusiast on the subject. The needs of the general practitioner who must work without the advantages which hospital facilities and trained assistants afford are kept in mind, and the author records his own experiences, thus consistently assuming responsibility for the efficiency of the methods recommended. The general principles of local anesthesia, technic and drugs employed are fully discussed, and its application to various operations in which it may be employed is detailed. Numerous well-made illustrations add much to make this work not only interesting but also useful and valuable

A SYSTEM OF SURGERY. Edited by C. C. Choyce, B.Sc., M.D., F.R.C.S., Dean of, and Teacher of Operative Surgery in, the London School of Clinical Medicine (Post-Graduate). Pathologic Editor J. Martin Beattie, M.A., M.D., C.M., Professor of Bacteriology in the University of Liverpool and Bacteriologist to the City of Liverpool. In Three Volumes. Price, $21 net. Vol. I, pp. 957, with 250 illustrations. Vol. II, pp. 1105, with 375 illustrations. Cloth. Price, $7 a volume. New York: Funk & Wagnalls Co., 1912.

This book "is destined for the practitioner of surgery who desires to keep himself abreast of the most modern teaching, and for the senior student who aims at a sound and comprehensive knowledge of present-day surgery." The work is of a character to meet this demand. The absence of fads and the descriptions of intricate methods of treatment make the work of value to the student and the general practitioner. Volume I describes the various features of surgical bacteriology and pathology. The chapters on inflammation, on suppuration and on neoplasms are very good. Volume II describes the surgery of the different regions of the body. Among the chapters deserving commendation are those on carcinoma of the breast, anatomy and surgery of the tongue, the surgery of gastric and duodenal ulcers, and the chapter on hernia. That the modern attainments and advancements of surgery have not been neglected is evidenced by the description of such conditions as Hirschsprung's disease, the consideration of pancreatic surgery, and the treatment of diseases of the esophagus and esophagoscopy. The work is profusely and instructively illustrated. On the whole it is one that may be thoroughly recommended to those for whom it has been written.

NEW ASPECTS OF DIABETES. Pathology and Treatment. By Prof. Dr. Carl von Noorden, Professor of the First Medical Clinic, Vienna. Lectures Delivered at the New York Post-Graduate Medical School. Cloth. Price, $1.50. Pp. 160. New York: E. B. Treat & Co., 1912.

The lectures do not cover the whole field of diabetes, but emphasize particularly some of the phases on which our knowledge has been especially enriched by modern research. The action of the various causes leading to an increased production of sugar is well illustrated by a diagram. The author regards the nervous influences as acting by stimulation of the adrenals to an increased production of epinephrin, while the thyroid and hypophysis on the other hand are supposed to act by depressing the pancreas. The therapeutic principles are carefully stated and the author lays stress on the importance of abolishing glycosuria in mild cases. The book closes with a special chapter on acetonuria, which constituted another lecture delivered in St. Louis.

BACTERIA. By Dr. Max Schottelius. Translated by Staff-Surgeon Herbert Geoghegan, R. N. Second Edition. Cloth. Price, $3.50. Pp. 324, with 43 illustrations. New York: Oxford University Press, 1912.

This is a brief elementary statement in regard to the position of bacteria in the scheme of Nature together with general details as to bacteriologic investigations and their connection with disease. It will serve as a groundwork for the understanding of bacteria in disease. There is a chapter on immunity and one on protozoal organisms. The translator has apparently adhered so closely to the original German text that he has unnecessarily failed to transform it into easily readable English. The book is interesting, however, as a simple statement on the important subject of bacteriology.

A STUDENT'S MANUAL OF SURGICAL DIAGNOSIS. By George Emerson Brewer, M.D., Professor of Clinical Surgery, College of Physicians and Surgeons, Columbia University. Cloth. Price, $1. Pp. 40. New York: D. Appleton & Co., 1912.

This is a brief manual used by the author in teaching surgical diagnosis to undergraduates. Surgical affections are first grouped and charted under the four general heads of injuries, deformities, inflammations and new growths. After the affection has been assigned to one of the general groups further differentiation is aided by means of ten regional charts and two particular charts on ulcers and external hernias, respectively. Final diagnosis is reached mainly by exclusion. As an aid to students in class work the manual possesses considerable merit.

MILITARY HYGIENE AND SANITATION. By Colonel Charles H. Melville, M.B., D.P.H., Royal Army Medical Corps. Cloth. Price, $3.50 net. Pp. 418, with illustrations. New York: Longmans, Green & Co., 1912.

This treatise is an elaboration of the lectures delivered by the author while professor of hygiene at the Royal Army Medical College. He has wisely not attempted to deal with all the problems of hygiene, but has selected those which are more likely to be encountered in time of war. The same applies to the discussion of the prevention of communicable diseases. The introductory chapter is one of the most valuable in the book as it not only is an introduction, but also gives a summary of information indispensable to every sanitary officer. The author then takes up the topics in the logical order, beginning with sanitary organizations, and the recruit, physical training, marching, food, the ration, water-supply, ventilation, disposal of waste matters, clothing, equipment, prevention of infectious diseases, and disinfection, and closes with a short chapter on sanitation of the battle-field. The appendixes give scales of field-service rations, tabulated statements of the comparative value, total food consumed, energy expended, ration scales and variations in weight in practice marches, and a table showing the emergency rations of the armies of the various nations of the world.

SLEEP AND THE SLEEPLESS. Simple Rules for Overcoming Insomnia. By Joseph Collins, M.D., Physician to the Neurological Institute of New York. Cloth. Price, $1 net. Pp. 129. New York: Sturgis & Walton Co., 1912.

In this little book Dr. Collins describes entertainingly for the insomniac some of the theories of sleep and the varieties of insomnia, the physical and mental causes of sleeplessness, and simple, rational methods of overcoming this distressing condition. He says that sleeplessness may become a habit and may be overcome by training just as one may improve the wind or the muscular development by exercise. In the treatment of insomnia, however, he does not confine himself to the acquirement of the sleep habit but writes sensibly on the various bodily conditions which induce sleeplessness, chief of which, perhaps, is indigestion in its various forms. Important in a book for laymen is the wise teaching of the author of the comparative uselessness of drugs for overcoming the conditions inducing insomnia and of the danger of hypnotic drugs in all forms. The simpler physical methods of treatment, including exercise, baths, judicious diet and the cultivation of a tranquil mind, are the things properly emphasized. The book is charmingly written.

THE CARE OF THE SKIN IN HEALTH. By W. Allan Jamieson, M.D., F.R.C.P.E. Cloth. Price, $1. Pp. 109. New York: Oxford University Press, 1912.

It has been proposed to measure the civilization of a community by the amount of soap which it uses. The present work is iconoclastic in this respect. The author, who is a dermatologist, has given a plain account of the structure of the skin and hair, and good directions for their ordinary care. He discountenances the use of soap and recommends daily friction and massage of the skin by means of a roller belt or massage glove. The condemnation of soap will seem heretical to many, but the author asserts that the alkali set free robs the skin of its natural oil greatly to its detriment. Good directions are given for the care of the hair and nails.

EINFÜHRUNG IN DIE MODERNE KINDERHEILKUNDE. Ein Lehrbuch für Studierende und Aerzte. Von Dr. B. Salge, Professor der Kinderheilkunde in Freiburg i. B. Third Edition. Cloth. Price, 9 marks. Pp. 392, with 15 illustrations. Berlin: Julius Springer, 1912.

This is not intended to be "an exhaustive text-book, or a compend, or least of all a compilation," but "an introduction for practitioners and students to the methods and point of view (Art der Auffassung) of modern pediatrics." That it has well fulfilled this purpose and has found for itself a useful niche among so many good books on diseases of children is evidenced by the fact that three editions have appeared in less than as many years. The author has the happy faculty of being concise, without showing evident effort to be brief.

Medicolegal

Requirements as to Having and Recording Licenses—Violation of Statute by Chiropractics

(*State vs. Zychman (Ia.), 138 N. W. R. 387*)

The Supreme Court of Iowa affirms the conviction of two defendants, separately indicted. The court says that it was complained that the indictments charged a failure to file a license with the county recorder of Polk County, without any allegation that the defendant was a resident of that county, and that the trial judge instructed the jury in each case that the practice of medicine in Polk County by the defendant without recording a license in that county would constitute a crime, although there was no allegation or proof that the defendant was a resident of that county. The construction of the statute relied on for the defendants was unquestionably correct, for it is provided in Section 2577 of the code that the certificate of license granted by the state board of examiners shall be filed for record "in the office of the recorder of the county in which he (the person licensed to practice) resides," and that "the same record must be made of the certificate in any county to which the holder may remove and in which he proposes to practice." Plainly, under these statutory provisions, a practitioner who has procured the proper certificate or license, and has had it recorded in the county of his residence, is entitled to practice in any county in the state, unless he is an itinerant physician as described in Section 2581 of the code; and he is required to have it recorded in another county only in the event of a change of residence.

But the court thinks that any prejudice to the defendants from the error in the instructions to the jury in the matter here referred to was clearly negatived by the record. The indictments sufficiently charged the defendants with practicing in Polk County without having a certificate from the proper authorities so to practice. If the defendants did not have such certificates, then their practice in Polk County or any other county in the state was unlawful without regard to the filing of a certificate in Polk County or any other county; for, if the defendants did not have certificates, no such certificates could be filed anywhere. The charge of practicing without having procured certificates was fully made out in the indictment, and the additional charge of failure to file with the recorder of Polk County was in that respect surplusage.

It appeared, too, from the record that the defendants had no certificates whatever from the board of medical examiners of the state. They were, therefore, not entitled to practice medicine in any county of the state, and the county of residence was necessarily immaterial. The jurors could not have possibly predicated their verdicts on the failure of the defendants to record certificates in the proper county. They could not, therefore, complain that, with reference to the recording of certificates which confessedly they never had, the jurors were improperly instructed.

There was also complaint that the jurors were improperly instructed as to what constitutes a practice of medicine without a certificate as provided by the statute, particularly when they were told that the defendants might be convicted on a finding that without certificates they "did publicly profess to cure or heal" or did devote themselves to and employ "means of curing and healing and of alleviating pain," as also that the defendants might be found guilty if it appeared that they "performed any services in a professional capacity in attempting to cure or heal or alleviate pain in those who applied" to them for treatment. The complaint in this respect was that persons, not physicians, might "devote themselves to curing, healing and alleviating pain" without any violation of the statute. And it was suggested that a nurse or a mother of an infant is not guilty of the illegal practice of medicine without a license, although devoted "to curing, healing and alleviating pain." Now it must be confessed that in using the language complained of the judge did not accurately state the provisions of the statute, for the court does not find in the statute any specific reference to the act of devoting one's self to and

employing means of "curing and healing and of alleviating pain." It may well be suggested, however, that neither a professional nurse nor the mother of an infant devotes himself or herself to the employment of means of curing and healing and of alleviating pain.

But, however this may be, the record in this case showed, without any possible ground of controversy, that the defendants professed to be chiropractics, maintaining an office in Polk County, holding themselves out to treat and treating patients for disease, with the purpose of curing and healing, holding diplomas from a chiropractic school; and that they did so without having procured certificates from the state board of medical examiners. In view of these undisputed facts, it is plain that even in devoting themselves to and employing means of curing and healing and of alleviating pain without licenses they violated the statute. While, therefore, the language used by the judge, as above indicated, was in some respects inapt, it could not possibly have misled the jury into the error of finding guilt without proof beyond a reasonable doubt that the defendants either professed to be physicians, or made a practice of prescribing and furnishing medicine for the sick, or publicly pretended to cure or heal.

The contention in argument that one who advertises and holds himself out as a chiropractic is not within the provision of the statute unless he actually undertakes in specific cases to cure and heal is not well founded. The statute applies equally to those who profess to be physicians and assume the duties of such profession and publicly profess to cure or heal, and to those who make a practice of prescribing for the sick. That the defendants did make a practice of prescribing their method of treatment for sick persons appeared from their own testimony; but, whether they did so or not, if they held themselves out as publicly professing to cure or heal, they were required to have certificates.

When Masseurs Liable for Practice of Medicine—Receiving Payment Indirectly—"Physician" and "Doctor" Synonymous

(Milling vs. State (Tex.), 150 S. W. R. 434)

The Court of Criminal Appeals of Texas affirms a conviction of the defendant Milling of unlawfully practicing medicine, for which the penalty was fixed at a fine of $50 and twenty minutes in jail. The court says that it was not necessary for the indictment to allege that the treatment he practiced was not within the particular sphere of his labors as masseur, and to negative that he did not publicly represent himself as a masseur. The issue in this case was sharply drawn. The state alleged and proved that the defendant practiced on human beings and treated them for disease and disorder as a doctor or physician and charged indirectly therefor without procuring and having registered a license therefor. The defendant claimed that he did not so practice, but that he practiced simply and solely as a masseur, so advertising himself.

It was entirely proper to instruct the jury that masseurs in their particular sphere of labor who publicly represent themselves as such are exempt from the law requiring a certificate of their authority to be recorded before practicing that art, but that if, notwithstanding he so represents himself as a masseur, he undertakes to cure diseases for pay, and represents himself as able to cure diseases in that manner, he could not do so legally without the proper certificate registered in the clerk's office, etc. In other words, he could not hold himself out as a masseur, claiming to treat diseases without pay, and as a matter of fact treat human beings for disease and disorder as a doctor and indirectly charge them therefor, without a certificate registered, etc.

The jury were also correctly instructed that if they found from the evidence that the party alleged to have been treated by the defendant paid him $2 for board and lodging, and did not pay him that sum for treatment of disease of the body, to find him not guilty; but, if they should find beyond a reasonable doubt that the $2 was in reality paid, and received by the defendant as payment, for a treatment of disease, and that the understanding between them was, if there was any understanding, that the $2 paid for board and lodging was a mere subterfuge to evade the law, and they further found that every other allegation in the indictment was fully sustained by the proof, then they should find the defendant guilty. And the proof clearly showed, or authorized the jury to find and believe, that, notwithstanding he advertised himself as a masseur and to treat diseases free of charge, as a matter of fact, the defendant charged for treating diseases as a doctor under the guise and sham of charging a hotel bill, and that, instead of treating simply and solely as a masseur without pay, he treated diseases continuously and received pay therefor.

There was nothing in the contention that the verdict of the jury was unsupported by the evidence in that the allegation was that the defendant treated a physical disease and disorder in the capacity of a physician or doctor, or both, being in the disjunctive and not in the conjunctive. "Physician" and "doctor" are synonymous, and are so understood and used, and the allegation in the indictment where these two words were used could not be considered as disjunctive allegations. Nor could a distinction be made between manipulations with the hands "over" and "upon" a person's body.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, MINNEAPOLIS, JUNE 17-20

Alabama State Medical Association, Mobile, April 15-18.
Amer. Assn. of Genito-Urinary Surgeons, Washington, May 6-7.
Am. Assn. of Pathologists and Bacteriologists, Washington, May 6-8.
American Climatological Association, Washington, May 6-7.
American Dermatological Association, Washington, May 6-8.
American Gastro-Enterological Association, Washington, May 5-6.
American Gynecological Society, Washington, May 6-8.
American Laryngological Association, Washington, May 5-7.
American Laryn., Rhin. and Otol. Society, Washington, May 8-10.
American Neurological Association, Washington, May 5-7.
American Ophthalmological Society, Washington, May 6-7.
American Orthopedic Association, Washington, May 6-8.
American Otological Society, Washington, May 6-7.
American Pediatric Society, Washington, May 5-7.
American Society of Tropical Medicine, Washington, May 6-8.
American Surgical Association, Washington, May 6-8.
American Therapeutic Society, Washington, May 5-6.
American Urological Association, Boston, April 15-17.
Association of American Physicians, Washington, May 6-7.
California State Medical Society, Oakland, April 15-17.
Congress Am. Phys. and Surg. of N. America, Washington, May 6-7.
Georgia State Medical Association, Savannah, April 16-18.
Iowa State Medical Society, Des Moines, May 7-9.
Kansas Medical Society, Topeka, May 7-8.
Louisiana State Medical Society, Baton Rouge, April 22-24.
Maryland Medical and Chirurgical Faculty, Baltimore, April 22-24.
Mississippi State Medical Association, Vicksburg, April 8-10.
Nat. Assn. for Study and Prev. of Tuberculosis, Washington, May 8-9.
New York State Medical Society, Rochester, April 29-May 1.
North Dakota State Medical Association, Minot, May 7-8.
South Carolina State Medical Association, Rock Hill, April 15-17.
Tennessee State Medical Association, Nashville, April 8-10.
Texas State Medical Association, San Antonio, May 6-8.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting held Feb. 5, 1913

The President, DR. JAMES C. WILSON, in the Chair

Thymus Death in the New-Born; Report of Case

DR. EDWARD P. DAVIS: The patient was pregnant, near term and had had irregular bleeding for several days. She was delivered promptly by cesarean section, and her convalescence was uninterrupted. The child did well for twenty-four hours but died in spasm with dyspnea. During the life of the infant its neck and thoracic region presented nothing abnormal. Recent studies in relationships existing between the placenta and the thyroid gland suggest that the large thymus in the new-born must share in various disturbed conditions of maternal and fetal metabolism. In my case it is possible that the mother's hemorrhage had altered the condition of the fetal blood and in consequence produced alteration in the size and condition of the thymus. That the gland was enlarged before

delivery, is shown from the fact that the fetus was observed to make inspiratory movements of an unusual character before the membranes were opened. Evidently the disturbance of eventrating the uterus and compressing the lower segment to control hemorrhage was sufficient to influence the fetus. It is difficult in the present state of our knowledge to suggest measures for preventing thymus death. Attention to the mother's hygiene during pregnancy is certainly demanded. Delivery by cesarean section exposes the child to the least possible mechanical disturbance, and in this case no prolonged or vigorous efforts were made to establish respiration. A further study of the thymus from the point of view of toxins and serums may throw light on this obscure condition.

DR. J. P. CROZER GRIFFITH: The term "thymus death" is rather an unfortunate one because it does not always have the same meaning. Death undoubtedly may be due to pressure of the thymus gland on the trachea. The majority of so-called thymus deaths have been *sudden* deaths. I believe that such deaths are cardiac deaths. There is no anatomic proof of the occurrence of sudden congestion. The most generally accepted theory for these cases of sudden death is that the condition is a neurosis, toxic perhaps in origin, and that for some unknown cause, varying with the case, there is a sudden arrest of the heart's action.

Myocardial Hydrothorax

DR. JAMES M. ANDERS: The association of cardiac disease and unilateral hydrothorax is not rare. In thirteen out of my sixteen cases of hydrothorax due to myocardial changes, the condition was wholly on the right side throughout. In five of the sixteen cases, clear and convincing evidence of well-pronounced chronic interstitial nephritis was present. In nine cases the cardiac incompetency was caused by chronic myocarditis. Myocardial hydrothorax is especially apt to go unrecognized in cases in which external edema is absent, the severe dyspnea being attributed principally to so-called cardiac or cardiorenal asthma and pulmonary congestion. It is not uncommon to meet cases of myocardial insufficiency that simulate closely valvular disease, particularly mitral incompetency, with which may be associated a mild grade of stenosis. There is not obtainable, however, a clear history of acute articular rheumatism in chronic myocarditis, but commonly of one of the exciting factors of secondary dilatation of the heart, such as physical or mental overstrain, an intercurrent febrile affection and the like.

Treatment has reference to removal of transudate by tapping the chest and correction of the causative condition as far as possible by hygienic and medicinal means. It is futile, as a rule, to attempt to get rid of the transudate by the exhibition of digitalis and other cardiac stimulants without first withdrawal of the fluid by aspiration if it be considerable in amount. The myocardial insufficiency demands resort to remedies that will strengthen the heart muscle. Rest is the most valuable adjunct in the treatment of the cardiac dilatation to which the hydrothorax is due, but must be absolute and long continued. The use of saline laxatives carried to the point of rather active catharsis was of decided service in a few of my cases. In five instances of the series herewith reported a salt-poor diet was employed with favorable effect, reaccumulation of the transudate being thereby noticeably delayed.

DISCUSSION

DR. JUDSON DALAND: As the symptomatology is readily explained by the condition of the myocardium, the liquid in the pleura is overlooked because no physical examination is made. In my experience certain of these cases have not done well under the influence of digitalis, more especially if we have reason to believe there is degeneration of the myocardium. Strophanthus is more uniformly beneficial, provided the preparation is active. The tincture as ordinarily obtained is inert. In hypertension with myocardial inflammation or degeneration I have been unable to demonstrate that the hypertension has been permanently reduced by such doses of nitroglycerin as could be given with safety. Particularly important is it for us to bear always in mind the possibility emphasized by Dr. Anders that a latent unilateral hydrothorax may develop at any time during the course of myocardial inflammation or degeneration, and require early and prompt removal by the aspirator.

DR. JAMES TYSON: Whatever may be the more remote cause of non-inflammatory accumulations of fluid in the chest cavities, I believe they are practically due to cardiac weakness or obstruction to the onward movement of the blood or to both combined. The frequency of the invasion of the right chest as compared with the left might have been further illustrated by reference to the observations of the late Dr. J. Dutton Steele, who found that out of 100 cases 83 were double and 17 single, and that of the 83 double cases three-fourths were right-sided, and of the 17 single cases 10 were right-sided. I have learned that it is not well to wait before tapping for the effusion to become large if one is certain that it is present on one side or on the other.

DR. THOMAS MCCRAE: One possibility of error in the recognition of these cases lies in the fact that when the amount of fluid is not very large, the dulness is regarded as being due to increase in the size of the liver. The fluid may persist in these cases for long periods, and sometimes increases and decreases without any special change in the cardiac condition. This is particularly seen in patients who refuse tapping. In some cases the removal of a very small amount of fluid is followed by rapid absorption of the remainder.

DR. J. M. ANDERS: My object in presenting this paper was to refer to the cases of hydrothorax in which there was no external dropsy at the onset and no valvular disease, and therefore little ground for suspecting the presence of fluid in the pleural sacs. I want to emphasize the fact that we should systematically examine the thorax in chronic myocarditis, independently of either valvular disease or chronic nephritis. I believe that right-sided hydrothorax of cardiac origin is more often due to myocardial disease than has been supposed by clinicians. I would lay special stress on the extreme latency of right-sided hydrothorax due to foregoing chronic myocarditis, and agree with Dr. McCrae and Dr. Tyson that we should do tapping early in the presence of a weak or dilated heart.

NEW YORK NEUROLOGICAL SOCIETY

Meeting held Feb. 4, 1913

The President, DR. SMITH ELY JELLIFFE, in the Chair

Tumor of the Base of the Brain Immediately Behind the Hypophysis

DR. H. CLIMENKO: The patient, a girl aged 9, came under observation Nov. 10, 1912. Family history was unimportant. The patient was delivered instrumentally and breast-fed. Teething occurred in the seventh month; patient began to speak and walk when about a year old. She attended school until her present illness, and was of average intelligence. She had whooping-cough at 4, and measles a year later.

For the past twelve months the child had suffered from unusual thirst and occasional vomiting, although these symptoms were not of sufficient severity to interfere with her regular school work. Urine was negative. About six weeks ago she developed an alveolar abscess of the right lower molar; the abscess was incised, and a few days later the tooth was extracted. On the following day, ptosis of the right eyelid was noticed, and two days later a similar condition developed on the left side. She began to suffer from intense headaches and profuse vomiting.

Examination showed a pale, emaciated child of normal size and good development. Her station and gait were negative. All the tendon-reflexes were increased; no Babinski; no clonus. The abdominal reflexes could not be elicited. No sensory disturbances. Smell was unaffected. There was complete bitemporal hemianopsia, with pallor of the optic disks. There was complete ophthalmoplegia of the left eye, and the right eyeball was drawn outward. Both pupils were widely dilated and failed to react to light and accommodation; the other cranial nerves revealed no abnormalities. The heart, lungs and abdominal viscera were negative.

The blood and spinal fluid were negative as to the Wassermann test. The roentgenogram showed a marked depression of the middle fossa of the skull, presenting a trough-like appearance, while the posterior clinoid process was pushed forward, narrowing the upper part of the sella turcica. With these findings, the diagnosis of a tumor of the base of the brain was established. The headaches and vomiting have disappeared completely for the past few weeks, but the child is extremely emaciated and totally blind. No other symptoms have developed.

Air in the Cerebral Ventricles Following a Fracture of the Skull

DR. W. H. LUCKETT: The patient, a machinist, aged 47, admitted to the hospital Nov. 24, 1912, shortly after he had been struck by a trolley-car and thrown to the pavement, was conscious and rational on admittance. The pupils reacted equally to light. There was a right subconjunctival hemorrhage and a lacerated wound over the right eyebrow, connecting with a circular fracture of the frontal bone just above the orbital ridge. The tongue was covered with a bloody fluid, probably cerebrospinal fluid. A diagnosis of fracture of the skull was made and confirmed by two roentgenograms. The patient was prepared for immediate operation, but his symptoms cleared up so rapidly that it was decided to wait. On the fourth day he was sitting up in bed; on the seventh he was out of bed, and five days later he left the hospital contrary to advice and under protest.

One week later he was readmitted with the history that two days previously he had had a severe headache, with occasional vomiting. Up to that time he had been reading the papers daily, although he was dull and listless and would not converse with any one, and took no notice of his surroundings. For the past few days he had not replied when spoken to, although he understood what was said to him.

Two days after his readmission to the hospital the patient was examined. At this time he was conscious; he answered questions and obeyed commands intelligently; cerebration was slow and he was inclined from time to time to lapse into a condition of mental confusion; there was no aphasia at this time; no disturbance of speech; no astereognosis; tremor of tongue and hands. The pupils were normal and reacted equally. Facial innervation and motility of the tongue were normal. No tenderness on percussion over skull. No rigidity of neck. Upper extremities normal; the lower extremities showed no paresis or rigidity, but were resistive to examination. Both knee-jerks were increased, especially the right. Diagnosis, increased intracranial pressure; probably abscess.

A blood-count, made December 15, showed 15,900 leukocytes, with 86 per cent. of polymorphonuclears and 8 per cent. of lymphocytes. An ophthalmoscopic examination on the same day showed that the external ocular muscles of both eyes were normal, with a slight subconjunctival hemorrhage in the right temporal quadrant. In the right fundus the veins were enlarged and tortuous, with the central vein markedly dilated over the disk and also at the exit from the nerve. The arteries were slightly contracted. The disk borders were indistinct, owing to marked edema. In the left fundus the veins were also markedly dilated, the arteries were contracted, the disk borders were indistinct and there was a suspicion of retinal hemorrhage. Diagnosis, bilateral optic neuritis indicative of intracranial pressure.

A second series of roentgenograms showed that the ventricles of the brain were enormously dilated with what was probably either air or gas, and the patient apparently growing worse, a right-sided subtemporal decompression was done, December 16. On exposure, the dura did not bulge and was not particularly tense. No fluid escaped on incision of the dura and pia; a slight meningitis was noted. A needle was then passed into the anterior horn of the lateral ventricle, and the removal of the trocar was followed by two or three quick spurts of air and fluid, and then 8 c.c. of clear cerebrospinal fluid.

Because of the presence of a slight meningitis, the large quantity of fluid and the presence of air in the ventricles, it was determined to drain them. Accordingly a suboccipital operation was performed. The bone was exceedingly thin. The dura was incised, and then the pia into the cisterna magna, and immediately there escaped considerable clear fluid, admixed with bubbles of air. A small piece of twisted rubber tissue was inserted as a drain. The patient did well until the fourth day after the operation, when his temperature suddenly rose to 107 and he died.

At the necropsy air was shown to be present in the ventricles when they were incised with the brain submerged in a vessel of water. There was a lacerated wound of the base of the right frontal lobe just beneath the right anterior horn and just over the fracture in the orbital plate that communicated with the frontal sinus. It was subsequently learned that air was probably forced up through the fracture in the frontal sinus into the ventricles during an attack of sneezing.

Some Anomalous Tremors

DR. SMITH ELY JELLIFFE: I wish to report two cases. The first patient was a woman, aged 29, with a tremor of the left hand which was continuous during the day, disappearing during sleep. The tremor had come on gradually about seven months previously. Its rate was from 5 to 6 to the second, and had little intention quality. There was also a slight inequality in the pupils, but no modification of the reflexes. Wassermann and other examinations were negative throughout. The eye-grounds were normal.

The second patient, a woman, aged 34, had a tremor which began fourteen years previously in a manner similar to that illustrated in the first case. It began in one hand and gradually became generalized, until now it involved almost the entire body. There was marked stiffness and a tendency to retropulsion at times. There were no palsies or sensory changes, except that the sole of the left foot showed a slight diminution to light touch. All the reflexes were fairly active; there was no distinct Babinski. The eyes showed a slight inequality of the pupils, which was also present in the first case, and a distinct pallor of the temporal side of both disks. The fields were normal; there was no nystagmus. There were no speech defects. The patient was a sensible, intelligent young woman, and careful analysis failed to show any complex constellations. She had gradually lost weight, but there was no appreciable diminution in muscular power.

DISCUSSION

DR. B. SACHS: I think that the first case was one of paralysis agitans and the second one of multiple sclerosis. The first case was absolutely typical of paralysis agitans. There was no other type of tremor that it could be mistaken for, and the only one that could be at all compared to it was an occasional functional tremor. I recall one case of the kind in which the husband had paralysis agitans and the wife developed a similar functional tremor. In the case shown by Dr. Jelliffe the woman had the facies of paralysis agitans, and no symptoms which would lead one to think of any other diagnosis. Her age, 29, would not necessarily militate against the diagnosis, as paralysis agitans may have its onset in early life. I once saw a case of paralysis agitans in a young man coming on at about the age of 18 or 20. In that case the patient eventually developed all the symptoms of a disseminated sclerosis, although at their onset they were quite characteristic of paralysis agitans.

As to the second case, there is no doubt that it was an example of multiple sclerosis. The woman had a tremor which became worse on exertion, and she had just a slight tremor—an unconscious tremor we might call it—of the head and neck muscles, which we do not see in paralysis agitans. This is significant of multiple sclerosis. She had also had a pallor of the optic disks and some monotony of speech.

DR. J. RAMSAY HUNT: In the first case, on passive motion, there could be elicited a slight interrupted rigidity of the muscles. This is a phenomenon to which Dr. Moyer has applied the name of the "cog-wheel" symptom of paralysis agitans, and in early cases it is of distinct value. As to the second case, a positive diagnosis cannot be made. That offered by Dr. Sachs would be a probable working one; at the same time I am inclined to regard it as a case of progressive degeneration, perhaps in the pyramidal tracts.

DR. WILLIAM LESZYNSKY: The unusual factor in the first case is the age of the patient. The character of the tremor is not at all unusual. I can recall perhaps half a dozen cases in which it was unilateral, being confined to one hand for many months. When the patient's attention is directed to the opposite hand, the tremor on the affected side increases, which is quite characteristic in paralysis agitans. As to the second case, I do not think much stress can be laid on the pallor of the disks, as ophthalmologists frequently differ in their view of its significance—whether it is pathologic or physiologic. In this case there is apparently no disturbance of the field of vision. I would favor the diagnosis of paralysis agitans.

DR. EDWARD D. FISHER: I have seen a case similar to the first one in which there was evidently a lesion in the crural tract, but the tremor was constant and increased on motion. As to the second case, I would be inclined to look on it as a paralysis agitans rather than a multiple sclerosis.

DR. B. ONUF: In the second case there might be a diffuse brain sclerosis instead of a multiple sclerosis.

DR. M. NEUSTAEDTER: About two years ago I reported the case of a man aged 28, who after a shipwreck developed a tremor of one hand, the nature of which was at first uncertain. It was finally shown to be a case of paralysis agitans, as proved by the tremograph.

DR. L. PIERCE CLARK: The two cases impressed me much as they do Dr. Sachs, and for the same reason. I was surprised to hear from the discussion that paralysis agitans should be looked on as such an entity. It is rather premature to insist on an anatomic basis for that disease. In the first case, the tests showed that there was a distinct alteration of the vibrations to the intention type of tremor. I believe that this was a case of paralysis agitans, while the second was one of disseminated sclerosis. I saw a case of paralysis agitans in a man 29 years old, although these patients look older on account of the mask-like expression of the face.

DR. S. E. JELLIFFE: I feel justified in inferring that the two cases are of a similar type—that the first case represents the beginning stage of what might ultimately develop into the condition of the second case. I believe that in both cases the process is one of multiple sclerosis, but one which was localized at first and primarily in the midbrain structures. Here we have midbrain or paralysis agitans types of multiple sclerosis, the multiple sclerotic area involving those pathways which in the more recent works on this subject are referred to as being involved in paralysis agitans. As to the character of the tremor, at least three dennite types of tremor originating in the midbrain structure, depending on the point of interruption of the mechanism, are to be distinguished. These are the athetoid, the paralysis-agitans-like, and the intentional tremor. From the more recent studies of this subject we are able to say in just what portion of the are the mechanism was interrupted. In both of my cases the tremor was like that of paralysis agitans. The presence of vasomotor signs indicated possibly the implication of the thalamus, while the eye signs pointed to lesions located near the red nucleus.

Social Service and Public Health.—Social service in its study of character under adversity meets certain problems, certain forces that are breaking down character. The work of social service in remedying these evils has to deal with public health. One phase of the subject of public health which will do much to prevent feeble-mindedness, degeneracy, etc., is requiring a physical examination before marriage. A huckster, before he can get a license to pursue his trade in Chicago, must be asked a variety of questions and have his rating looked into, but all a man has to do to get a marriage license is to hand through a wicket the money and the names of the parties. No one should be allowed to get such a license who hasn't a certificate from a physician "decharing that he or she has no incurable or communicable disease." The teaching of sex-hygiene will help along this line. Every possible means should be employed to bring about accurate and wholesome knowledge of this subject.—Dean Walter T. Sumner, *Child Welfare Bull.*

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

March, CXLV, No. 3, pp. 313-468

1 *Symptomatic Differentiation Between Disorders of Two Lobes of Hypophysis Cerebri. H. Cushing, Boston.
2 *Gastric Disturbances in Tabes Dorsalis. W. F. Cheney, San Francisco.
3 Lymphocytosis of Infection. R. C. Cabot, Boston.
4 *Gastric Ulcer Without Food Retention; Clinical Analysis of 140 Operatively Demonstrated Cases. F. Smithies, Rochester, Minn.
5 Economic Aspects of Uncinariasis in Porto Rico. B. K. Ashford, U. S. Army.
6 *Urticaria Treated with Epinephrin. A. W. Swann, New York.
7 *Dissemination and Prevention of Yellow Fever. J. H. White, New Orleans.
8 Sanatorium of Future. H. J. Hall, Marblehead, Mass.
9 Diagnosis of Functional Activity of Pancreas by Means of Ferment Analyses of Duodenal Contents and Stools. B. B. Crohn, New York.
10 Study of Empyema, with Special Reference to Feasibility and Importance of Depend-nt Drainage. T. T. Thomas, Philadephia.

1. Disorders of Two Lobes of Pituitary Body.—The view is advanced by Cushing that skeletal overgrowth, possibly combined with certain cutaneous changes and hypertrichosis, is an indication of anterior lobe hyperplasia. On the other hand, certain types of adiposity with an increased assimilation limit for carbohydrates, often with dry skin, subnormal temperature and pulse, are characteristic of the metabolic disturbances from posterior lobe insufficiencies. Hypotrichosis and sexual dystrophy are common accompaniments.

Assuming the combination of these factors, certain not unfamiliar clinical syndromes, in which overgrowth is associated with adiposogenital dystrophy, can be explained. They differ from the accepted syndrome of Fröhlich not only in the absence of an hypophyseal tumor with sellar enlargement, but also in their opposed skeletal features. These physical states, in brief, are interpreted as the expression of an anterior lobe hyperplasia combined either with posterior lobe hypoplasia or with what is in effect the same thing, stasis of posterior lobe secretion.

2. Gastric Disturbances in Tabes Dorsalis.—It is maintained by Cheney that the recognition that certain gastric disturbances are really due to tabes is never difficult if one is alert to the possibility. There is no fixed unchangeable rule about the nature of these disturbances, or about their duration, or their frequency of recurrence, to make their diagnosis easy. They are not accompanied by the evidences of organic disease in the stomach that one expects to find; they recur in spite of treatment of all kinds directed to the stomach, even in spite of laparotomy; they usually appear abruptly, without reason, and cease suddenly regardless of treatment, leaving the patient perfectly free from gastric disturbance in the intervals. On the other hand, no manifestations of "locomotor ataxia" may be present for years during which the stomach upsets continue, and the patient may make none of the complaints that one expects to hear when spinal disease exists. The proof of the connection between the gastric disturbance and the spinal lesion, therefore, must often depend on the discovery of signs of tabes of which the patient is unaware, such as faulty reflexes and cutaneous sensibility and changes in the spinal fluid obtained by lumbar puncture; while the demonstration that active syphilis exists, by the Wassermann reaction in the blood and spinal fluid or even in the latter alone, adds the last link to the chain.

4. Gastric Ulcer Without Food Retention.—A clinical analysis of 140 cases of operatively demonstrated surgical gastric ulcer without food retention was made by Smithies. He found that in more than one-third of operatively demonstrated gastric ulcers the stomach's emptying power is maintained. Ninety-two per cent. of this group of ulcers occurs between the ages of 30 and 60. Males are affected three times as frequently as females. The American-born farmer furnishes a large number of gastric ulcers. Irregularity of food ingestion with the use of alcoholic stimulants is not an uncommon cen-

comitant of gastric ulcer. A rather striking frequency of history of previous infectious disease is shown; 18.9 per cent. of the patients had had typhoid. A mild grade of secondary anemia is present in the average gastric ulcer. Weight loss averaging more than twenty pounds without marked cachexia was shown in this series. The loss may be so rapid as frequently to suggest malignant disease. Some patients consistently gain weight. Appetite is lost or is capricious in nearly three-fourths of the cases. More than 65 per cent. are constipated. Nearly three-fourths of the patients have "spells" or "attacks" of discomfort, with good health between. Such a history may extend over thirty years without alarming clinical manifestations. The attacks are usually called "biliousness" or "dyspepsia." They often show a peculiar seasonal relation. In 36 per cent. of instances the disability is continuous, with or without nutritional disturbances. Abdominal pain or distress is a constant symptom in gastric ulcer. It is "colicky" in nature in more than 22 per cent. of cases, requiring hypodermic medication in 12.7 per cent. It is frequently mistaken for appendix, or gall-bladder disease, and is often associated with such in addition to gastric ulcer. Night pain, with interference with sleep, is present in 19.2 per cent. of cases. Eighty per cent. of patients complain of epigastric distress, frequently referred to the right rib margin or the back. In 87.7 per cent. of proved ulcers, pain or distress has definite relation to food ingestion. Eighty-three per cent. of cases show pain or distress coming on within four hours following eating. Nearly two-thirds of pyloric ulcer cases have discomfort from two to four hours after eating, more than one-half of lesser curvature ulcers from one to three hours after eating, more than two-thirds of posterior wall ulcers within three hours after eating, and more than two-thirds of ulcers near the cardia less than two hours after eating, while more than 44 per cent. of this class less than one hour after eating. Discomfort is most frequently controlled by ingestion of food, alkalies and by vomiting; 12.2 per cent. required morphin.

On palpation, epigastric tenderness is exhibited in 95 per cent. of cases. In more than three-fourths of the series, tenderness was most marked in the right upper abdominal quadrant; 2.8 per cent. of cases showed palpable ridges. More than four-fifths of the ulcers were located at the pyloric half of the stomach, and this was in general the anatomic area of greatest complaint or distress on examination. The diagnosis of the character of ulcer to be found on exploration is only possible where a careful anamnesis is made.

Vomiting is present in nearly three-fourths of gastric ulcers without food retention. About 17 per cent. vomit food. Only rarely is delayed vomiting observed. Vomiting is induced in more than 10 per cent. of cases to relieve pain. Nearly 40 per cent. of patients vomit regularly. "Waterbrash" is a prominent feature in 19 per cent.; pyrosis and eructation in 87.8 per cent. In nearly one-third of the cases, vomiting comes at the time of maximum abdominal distress. In 28 per cent. the ingestion of food precipitates vomiting; more than 53 per cent. vomit within three hours after eating. In 7 per cent. night vomiting is a feature. Ulcers at the pyloric half of the stomach are most commonly associated with vomiting even when there is no interference with the emptying power of the stomach. Of 140 proved ulcers in this group, bleeding (hematemesis or melena) was noted in but 40.7 per cent. About one-fourth of the cases had hematemesis alone, one-third hematemesis with or without melena, while 7.1 per cent. had melena alone. Severe hemorrhage or frequently repeated moderate hemorrhages are usually associated with faint feelings or actual fainting (40 per cent.). Hematemesis is more frequent than melena, but melena alone may occur entirely independent of the location of the ulcer. While bleeding is associated with any type of ulcer, nearly two-thirds of those doing so show operative evidences of perforation. Test-meal findings. Acidity: Irrespective of location of the ulcers the average total acidity was 55; the average free HCl, 42.5; the "combined" HCl in 82 per cent. of cases between 10 and 20. Total acidity is most commonly higher in ulcers involving the lesser curvature and anterior wall than where other parts of the stomach are affected. High free HCl is noticeably more frequent where the ulcer is at the pylorus. While high free HCl is usual in cases in the third decade of life, this is not the rule. Following food ingestion the great majority of cases show pain within four hours. This series shows that during this period free HCl is progressively increasing. Patients complaining of continuous distress do not necessarily have high acidity. Vomiting is not usually associated with high free HCl. More than half of the non-vomiting cases had higher acidity than was the average of those vomiting. The average free HCl of patients bleeding was 35 +. More than half of the cases giving no history of hemorrhage had average free HCl of 46. The highest free HCl averages are associated with subacute perforating ulcer. Operative Findings: More than two-fifths of the ulcers were at the pylorus. Of fifty ulcers microscopically examined in this series 24 per cent. showed active inflammatory change, 12 per cent. early carcinoma. In 35 per cent. of cases, diseased appendix was associated with gastric ulcer. In 15 per cent. cholecystitis and cholelithiasis were demonstrated as concomitant processes. In nearly two-thirds of this group of gastric ulcers, diseased appendix and gall-bladder were revealed operatively. In view of these figures it is evident that all laparotomies should be thoroughly exploratory even when a well-marked gastric ulcer has been demonstrated. Operative procedure should be adapted to the individual finding on exploration. A routine technic is frequently accountable for poor post-operative progress. Prompt relief of symptoms with a comfortable after-course is the rule following operative treatment of retention-free ulcer cases. This series shows an operative mortality of 1.4 per cent. Rather more than 4 per cent. required a second operation. This usually occurred in uncommon cases.

6. **Urticaria Treated with Epinephrin.**—In six cases of urticaria which Swann has treated by the subcutaneous administration of epinephin the injections were followed by a rapid disappearance of the erythema and wheals. In each case a dose corresponding to about eight minims (1-1,000 solution) for an adult of one hundred and forty pounds was given hypodermically, and the dose was repeated in ten minutes. Two doses sufficed in every instance to cause the complete fading of the rash. An improvement was usually evident eight minutes after the initial dose, and was most marked between ten and twenty minutes, during which time, especially in the severe cases, the rapidity with which the eruption subsided was very striking. After twenty minutes there usually remained some erythematous blotches, or small, pale wheals, which continued to fade until the skin looked entirely normal. All itching ceased in from five to twenty minutes after the first dose.

7. **Dissemination and Prevention of Yellow Fever.**—That the mosquito is the only disseminator of yellow fever, and the female stegomyia the only genus and species proved to be the carrier is emphatically stated by White. Further, he says that yellow fever is only infective during the first three days of the attack, and the mosquito biting a patient after that time receives no infection. The stegomyia itself cannot convey the infection to another human until after the lapse of at least ten days subsequent to the ingestion of yellow fever blood. One attack of yellow fever generally gives immunity—not always. Feeble susceptibility in the negro is sometimes confused with immunity. Mild cases are the rule with that race, and this causes many cases to be overlooked. Destruction of all breeding-places for all varieties of mosquitoes, and especially stegomyiae, anophelines and culicidae, is necessary in dealing with endemic foci. Rapid anti-epidemic work may be confined to destruction of infected stegomyiae alone; but this is short-sighted.

American Journal of Public Health, New York

February, III, No. 2, pp. 101-196

11 Value of Human Life. C. V. Chapin, Providence, R. I.
12 Mosquito Catching in Dwellings in Prophylaxis of Malaria. A. J. Orenstein, Washington, D. C.
13 Public Health Service Not a Medical Monopoly. M. Knowles, Pittsburgh.
14 Plea for More General Recognition of Qualifications of Sanitary Engineer for Administrative Public Health Work. C. H. Wells, Montclair, N. J.
15 Revitalizing Devitalized Children. W. W. Roach, Philadelphia.
16 Efficiency. M. T. Stevens, Seattle, Wash.

17 *Medium for Isolation of Colon Group. F. L. Rector, Brooklyn.
18 Plan for Reorganization of Public Health Service in State of New York. C. F. Bolduan, New York.
19 Comparison Between Sand Filtration Method and Bubbling Method for Enumerating Bacteria in Air. J. Weinzirl, Seattle, Wash., and J. B. Thomas, Baltimore.
20 *Effect of Freezing on Typhoid Vaccine. A. P. Hitchens and G. Hansen, Glenolden, Pa.
21 *Effect of Mixed Typhoid Vaccine with Regard to Formation of Agglutinins. A. P. Hitchens and G. Hansen, Glenolden, Pa.

17. **Isolation of Colon Group.**—As is well known, not all red colonies on litmus lactose agar prove to be of the colon type, and a medium giving a larger number of positive tests is desirable. A medium of the following composition was devised by Rector and tested for adaptability to this line of work:

Dried ox bile	10 per cent.
Peptone (Witte)	1 per cent.
Agar (shredded)	1.5 per cent.
Lactose	1 per cent.
Neutral red (1 per cent. sol.)	1 per cent.
Distilled water	q.s.

The dried bile and peptone are added to the distilled water, boiled and filtered through paper. The agar is then added and heated for one hour in the Arnold steamer. While the agar is dissolving prepare a filter of cheese cloth and absorbent cotton as proposed by Major Russell of the U. S. Army, and place this in the sterilizer with the bile solution. When the agar is dissolved it is filtered through the cotton, and the lactose, which had been dissolved previously in a small quantity of hot distilled water, is added, also the neutral red solution. After thorough mixing the material is tubed, placing from 6 to 10 c.c. in each tube, depending on the size of Petri dish used, and autoclaved for ten minutes at 12 pounds pressure. When in tubes, this medium looks quite red, but when placed in Petri plates in a thin layer, it is yellowish brown in color, and more or less opaque. On this medium colon-like colonies produce a distinct purplish red zone, which is characteristic. There is a clear area immediately surrounding the colony, which shades off into the denser medium. Owing to the inhibitory action of the bile, many bacteria which grow on litmus lactose agar will not grow on this medium. Plates of bile agar and litmus lactose agar were made from a suspension of horse feces using sterile distilled water as the diluting medium. At the end of twenty-four hours' incubation, sixty-five colonies, all showing characteristic appearance, were found on the bile agar plates, while 200 colonies, only forty of which were red, were counted on litmus lactose agar plates. Sub-cultures of various colonies from the bile agar plates showed them to be of the colon group. A series of seventeen cultures isolated at various times from water and one colon culture were inoculated into plates of bile agar and litmus lactose agar. Only eight of the eighteen grew on bile agar, and only two of these gave typical colonies on the plates. One of these was the colon which has been isolated from feces and the other was a member of the group isolated from a municipal water supply. Nine cultures, only two of which were of the colon group, gave a red growth on litmus lactose agar plates.

20. **Effect of Freezing on Typhoid Vaccine.**—If freezing effects vaccine at all, the authors claim that the weakening is slight. Under the ordinary conditions of the market a vaccine would be frozen only once or twice and thus the deterioration in strength would be negligible.

21. **Formation of Agglutinins.**—Vaccination with a mixture containing the ordinary number of typhoid bacilli and half the quantity of the paratyphoids confers as much immunity to each individual germ as though the single vaccine were used.

Archives of Diagnosis, New York

January, VI, No. 1, pp. 1-100

22 *Surgeon's Diagnosis in Neurasthenic Conditions. R. T. Morris, New York.
23 Therapeutic-Differential Diagnosis of Constitutional Dysmenorrhea. S. W. Bandler, New York.
24 *Atony of Cecum (Typhlatonia). H. Stern, New York.
25 Differential Diagnosis of Diseases of Genito-Urinary Tract. L. Heitzmann, New York.
26 Symptomatology, Diagnosis and Treatment of Aneurysm of Thoracic Aorta. C. G. Cumston, Boston.
27 Diagnostic Features of Phrenocardia (Sexual Psychogenic Cardiac Neurosis). J. Gutman, Brooklyn.
28 Family and Personal History Registers. J. M. Taylor, Philadelphia.
29 Prognosis of Operative Mastoiditis. H. Hays, New York.
30 Atypical Case of Acute Miliary Tuberculosis, Pulmonary Form. S. B. Ward, Albany, N. Y.
31 Recent Advancement in Roentgen Ray Diagnosis of Diseases of Genito-Urinary Tract. W. H. Stewart, New York.

22. **Neurasthenic Conditions.**—The surgical point of view in relation to cases of neurasthenia according to Morris begins from the standpoint of the bacteriologist's report, no matter whether it relates to a well-constructed individual suffering directly from the influence of colonic toxins, or whether he is dealing with progeny of such individuals, who are still more susceptible than were the parents to microbic influences. Other toxins, the end-products of various proteolytic changes, no doubt are influential in causing injury to the protoplasm of cells. Various products of waste improperly metabolized also act as toxins. In making a diagnosis of neurasthenia, however, or of the relative values of various phases of the condition, Morris says, we must begin from the bacteriologist's report of colonic findings. The surgeon can help in many of these cases by relieving the patient from features which exert a precipitating influence in the development of various symptoms belonging to neurasthenia. He can fix the loose kidney by a ten-minute operation. He can suspend the sagging colon and can separate adhesions which interfere with gastric or intestinal motility. He can break a part of the vicious circle, but his work does not end the possibility of our still continuing to make the diagnosis of neurasthenia in these cases.

The internist can help in most of these cases, by controlling the output of toxins from the colonic bacteria. The ophthalmologist and various other specialists can help by relieving the patient from the influence of peripheral irritations which precipitate the appearance of symptoms.

24. **Atony of Cecum.**—This condition, Stern says, prevails frequently in young individuals, but it is also common in both sexes between the twenty-fifth and forty-fifth year of life. Obstinate constipation continuing even during the attack-free intervals is the paramount characteristic of the affection. Paroxysms of severe griping pain lasting, as a rule, for some hours, supervene at irregular periods. In a certain proportion of the cases definite paroxysms of pain never occur; the patient may experience a certain amount of discomfort, at some times more, at others less. There may be fulness at the site of the cecum and a dragging on the ascending colon, which may even be felt in the region of the hepatic flexure. The atonic cecum may readily be mistaken for a case of latent cholelithiasis. At other times the discomfort may be due to traction of the cecum on its mesentery or on lateral adhesions. Pains, especially those in the flank, may be due to constriction of veil-like structures partly or entirely enveloping the cecum.

During an acute attack of colic there may be noted loss of appetite, often nausea and vomiting, and sometimes marked symptoms of collapse. Temperature elevation does not take place in the average case. The pulse frequency is unchanged and the leukocyte count is normal. Palpation evinces a localized resistance or even a circumscribed tumefaction in the cecal region. The resistant area or tumefaction is never firm, but rather soft and elastic, and feels to the touch like a moderately inflated toy balloon. In the absence of adhesions the palpating hands can passively displace the resistant area. A cecal balloon is not always readily distinguishable from an incomplete direct inguinal hernia. Examination by the rectum does not reveal the cecal ballooning. Percussion confirms the palpatial findings by determining a circumscribed area of tympany which corresponds more or less closely to the area of resistance offered by the distended and atonic cecum.

Ileocecal gurgling is said to be probably the most characteristic symptom of the dilated atonic cecum; in a number of the cases cecal splashing sounds may be elicited. The palpatorial findings and acoustic phenomena are not constant during the pain-free intervals. Still, superficial resistance and cecal

tympany of some degree may be educed in most, and gurgling sounds in many cases of the quiescent stage of typhlatonia.

Constipation may irregularly alternate with diarrhea during the attacks as well as in the intervening periods. Myxorrhea may occasionally supervene. Indicanuria is of frequent occurrence in typhlatonia, albuminuria is not rare during an attack, and moderate hematuria has ensued in some of Stern's cases in which there was also prolapse of the right kidney. Acetonuria was found by him in two non-diabetic patients with atony of the cecum, which latter was constricted by veil-like membranes in both instances. Of special value in the recognition of typhlatonia, particularly when associated with typhlectasia, is the radiographic examination and the employment of Stern's procedure, viz., displacement toward the midabdomen of the cecum, i. e., cecal tympany and gurgling, when the patient occupies the left lateral posture. In case, however, the cecum is laterally fixed by adhesions, or when it is retained by embryonic membranes, it cannot, of course, perform any excursion toward the midabdomen. In the fixed cecum, on the other hand, gurgling sounds may be evoked after the patient has been placed a few times from one side to the other.

Archives of Ophthalmology, New York

March, XLII, No. 2, pp. 117-226

32 Clinical and Experimental Researches on Intraocular Drainage. M. J. Schoenberg, New York.
33 Unusual Duration of Mental Symptoms in Case of Atropin Poisoning. C. W. Burr, Philadelphia.
34 Case of Conical Cornea Successfully Treated by Actual Cautery. W. C. Posey, Philadelphia.
35 Effect of Chronic Glaucoma on Central Retinal Vessels. F. H. Verhoeff, Boston.
36 Optic Disk in Purulent Otitic Disease and Its Complications. E. Gruening, New York.
37 Rods as Color-Perceptive Organs. V. O. Siven, Helsingfors, Finland.
38 Etiology of Parinaud's Conjunctivitis. Krusius and Clausen, Berlin.
39 Case of Eversion of Pigment Layer of Iris. R. Hack, Würzburg.

Arkansas Medical Society Journal, Little Rock

February, IX, No. 9, pp. 205-228

40 Our Professions and the Sick Man. W. A. Snodgrass, Little Rock.
41 *Involution of Uterus, or Care of the Puerperium. E. N. Davis, Little Rock.
42 *Sterilization of Skin in Emergency Work with Special Reference to Benzin-Iodin and Iodin Methods. C. H. Holt, Fort Smith.
43 Occurrence of Chills at Irregular Intervals, that Are Usually Pronounced of Malarial Origin. T. M. Fly, Little Rock.

41. Abstracted in THE JOURNAL, June 29, 1912, p. 2048.

42. **Sterilization of Skin in Emergency Work.**—To test the efficiency of the iodinbenzin method, Holt had several laboratory experiments made in comparison to bichlorid treatment. The tests consisted in cleaning the skin as done in routine work, with the application finally of a 1-2,000 bichlorid solution. Subsequent scraping of the skin and planting on Petri dish, cultures showed in 75 per cent. of cases that after seventy-two hours' incubation a few colonies of bacteria would appear, showing conclusively that all germs had not been killed and prevented from reproducing themselves. The same course carried out with the iodin-benzin treatment showed in all cases negative results, showing its efficiency in killing all bacteria with which it came in contact.

Boston Medical and Surgical Journal

March 13, CLXVIII, No. 11, pp. 373-408

44 Ureteral Obstruction. B. Tenney, Boston.
45 Conservative Treatment of Toxemia of Pregnancy with Convulsions. C. M. Green, Boston.
46 Prevention of Foot Strain. R. B. Osgood, Boston.
47 Typhoid Vaccination. J. H. Young, Newton, Mass.
48 *New Method of Dealing with Peripheral Branches of Fifth Cranial Nerve in Tic Douloureux. B. B. Cates, Knoxville, Tenn.
49 Collection of Facts, Ideas and Theories Relating to Diverse Elements that Contribute to Success in Treatment of Joint Diseases. H. W. Marshall, Boston.
50 Ball-Valve Apparatus for Administration of Salvarsan. L. L. Albert, Boston.

48. **New Method of Dealing with Peripheral Branches of Fifth Cranial Nerve in Tic Douloureux.**—In respect to the supra-orbital nerve, after pulling it out, Gates carries the proximal end of the distal branch by tunneling a variable distance under the muscles of the forehead, then splits the occipitofrontalis, and anchors it with catgut to the under surface of the skin of the forehead. The proximal end of the distal extremity of the infra-orbital nerve is pulled down and attached with fine catgut to the tissues of the cheek under the skin. This, he says, prevents the coptinuity of the nerve being reestablished.

California State Journal of Medicine, San Francisco

March, XI, No. 3, pp. 97-134

51 Successful Removal of Intradural Tumor from Spinal Canal. L. Newmark and H. M. Sherman, San Francisco.
52 Variations of Clinical Picture of Meningeal Affection in Pulmonary Tuberculosis in Adults. J. L. Pomeroy, Monrovia.
53 Two Cases of Appendicitis with Certain Postoperative Complications. J. L. Lohse, Oakland.
54 Chinese Medicine in America. C. K. Roys, Wei-hsien, China.
55 Sarcoma of Uterus. E. Rixford, San Francisco.
56 Uncinariasis and Its Importation Into California. J. W. Colbert, Albuquerque, N. Mex.
57 Suppurative Appendicitis. R. T. Legge, McCloud.

Illinois Medical Journal, Springfield

March, XXIII, No. 3, pp. 249-332

58 Efficient and Easily Removable Nasal Packing. E. F. Ingals, Chicago.
59 Rheumatism in Children. J. G. Campbell, Chicago.
60 Infant Mortality and Eugenics. M. Solomon, Chicago.
61 Ductless Glands and Diabetes. A. C. Croftan, Chicago.
62 Diagnosis and Treatment of Diseases of Prostate and Verumontanum. J. R. Caulk, St. Louis, Mo.
63 Contract Practice in England Under Insurance Act. C. M. Wood, Decatur.
64 Some Sexual Disorders in Male: "Impotency and Involuntary Seminal Emissions." A. E. Mowry, Chicago.
65 Differential Diagnosis of Gall-Bladder Disease. A. B. Kunavel, Chicago.
66 Pott's Fracture. E. M. Brown, Chicago.
67 Meningitis in Infancy. R. H. Smith, Seaton.
68 Attempted Suicide by Hara-Kiri Method with Recovery. E. L. Cornell, Chicago.

Journal of Biological Chemistry, Baltimore

March, XIV, No. 2, pp. 53-157

69 *Studies in Cottonseed-Meal Intoxication. I. Pyrophosphoric Acid. W. A. Withers and B. J. Ray, Raleigh, N. C.
70 Influence of Function on Lime Requirements of Animals. H. Steenbock and E. B. Hart, Madison, Wis.
71 Effect of High Magnesium Intake on Calcium Retention by Swine. E. B. Hart and H. Steenbock, Madison, Wis.
72 Extremes of Variation of Concentration of Ionized Hydrogen in Human Urine. L. J. Henderson and W. W. Palmer, Boston.
73 *Estimation of Creatinin and Creatin in Diabetic Urines. I. Greenwald, New York.
74 Colorimetric Determination of Uric Acid in Urine. O. Folin and W. Denis, Boston.
75 *Nature of Iodin-Containing Complex in Thyreoglobulin. F. C. Koch, Chicago.
76 *Experiments Bearing on Functions of Liver in Metabolism of Fats. H. S. Raper, Toronto.
77 Influence of Phlorhizin on Dogs with Eck's Fistula. J. E. Sweet and A. I. Ringer, Philadelphia.
78 Influence of Phlorhizin on Splenectomized Dog. J. H. Austin and A. I. Ringer, Philadelphia.
79 Method for Determining Surface Tension of Liquids for Biological Purposes. C. C. Erdmann, Waverly, Mass.
80 Action of Leukocytes on Some Hexoses and Pentoses. P. A. Levene and G. M. Meyer, New York.
81 Enzyme Concerned with Formation of Hydroxy Acids from Ketonic Aldehyds. H. D. Dakin and H. W. Dudley, New York.

69. **Toxicity of Cottonseed-Meal.**—Experiments made by Withers and Ray show that pepsin-pancreatin extract of cottonseed-meal is toxic generally to rabbits, when fed in amounts corresponding to from fifteen to twenty times the amount of meal normally fed, and that the pyrophosphoric acid corresponding to this extract is toxic if fed similarly. The pepsin-pancreatin residue is more toxic than the aqueous or pepsin-pancreatin extracts of the meal—in fact it is the only one of the three fractions which is toxic under the conditions of the feeding. A fraction of cottonseed-meal containing a non-toxic amount of pyrophosphoric acid may be toxic. The results indicate that pyrophosphoric acid is not the cause of toxicity of cottonseed-meal.

73. **Estimation of Creatinin and Creatin.**—In urines containing acetoacetic acid or acetone, Greenwald says creatinin may be estimated accurately by the Folin method only after removal of these substances. Dextrose, in concentrations up to 5 per cent., is without appreciable effect on the estimation of creatin by the Folin method.

75. **Iodin Complex of Thyreoglobulin.**—Koch found that the full activity of thyroid tissue is contained in the thyreoglobulin fraction when this activity is measured by the Hunt method. The full activity per iodin unit is still present in the metaprotein fraction from this globulin, although the iodin content in the metaprotein fraction has been increased over threefold that of the globulin itself. The other products of the hydrolysis studied, primary albumose, iodothyrin and secondary albumose, show a gradual decrease in activity per unit of iodin in the order given. The amino-acid fractions precipitated and not precipitated by phosphotungstic acid from the partially hydrolyzed thyreoglobulin still contain very small amounts of iodin and per unit of iodin are either extremely low in activity or entirely inactive. Tetra-iodohistidin and anhydrid and iodotryptophan do not possess thyroid activity as determined by the Hunt method.

76. **Hepatic Functions in Fat Metabolism.**—Cocoanut oil administered to cats or dogs by the mouth was detected by Raper in the liver in five or six hours. The amount present after times varying from five to twelve hours does not exceed 6 per cent. of that absorbed. If cats be anesthetized (urethan and ether), and a solution of cocoanut oil soaps containing glycerin and bile salts be run into the small intestine, then about 30 per cent. of the absorbed fatty acid is found in the liver. When cocoanut oil is given to cats or dogs intravenously in the form of a very fine emulsion, containing about 4 per cent. of the oil, then from 25 to 60 per cent. of the oil which enters the systemic circulation is found in the liver. Raper believes that it is probable that the greater retention of the oil by the liver, when it is administered in the form of soap or a fine emulsion, is partly due to the anesthetic and partly to the rapidity of administration. When cocoanut oil is being absorbed, the fat in the chyle contains fatty acids with an average higher molecular weight than those in the oil administered. It is probable, therefore, that the lower fatty acids in the oil are partly absorbed as sodium salts. The volatile acids obtained from the liver in the above sets of experiments absorbed more iodin than the volatile acids from normal livers. The increase was not great but it probably indicates that saturated fatty acids containing 10, 12 or 14 carbon atoms may become unsaturated in the liver.

Journal-Lancet, Minneapolis

March 1, XXXIII, No. 5, pp. 127-158

82 *Treatment of Hernia in Children. A. J. Ochsner, Chicago.
83 Observations on German Surgery. C. H. Mayo, Rochester, Minn.
84 Plaster-of-Paris Casts. E. S. Geist, Minneapolis.
85 Medical Education. C. P. Lommen, Vermillion, S. D.
86 New Public Health. H. W. Hill, Minneapolis.

82. Abstracted in THE JOURNAL, Sept. 7, 1912, p. 823.

Kentucky Medical Journal, Bowling Green

March 1, XI, No. 5, pp. 177-232

87 Address in Medicine. J. A. Witherspoon, Nashville, Tenn.
88 *How United States Public Health Service Can Help in Eradication of Preventable Diseases in Kentucky. J. Goldberger, Washington, D. C.
89 *Public Health Problem—Constructive Efforts Towards Its Solution. W. L. Heizer, Bowling Green.
90 What Federation of Women's Clubs Will Do to Conserve Health and Lives of Women and Children of Kentucky. L. Riker, Harrodsburg.
91 What Will Be Attempted by State Department of Education to Lower Sick and Death Rate of Kentucky. B. Hamlett, Kentucky.
92 Some Practical Public Health Work That Will Be Attempted by Kentucky Press Association. E. Shinnick, Louisville.
93 Plans of Cooperative Health Work That Will Be Presented for Action by Kentucky Educational Association. R. L. McFarland, Louisville.
94 Possibilities of Concerted Public Health Work by Young Men's Christian Association. P. C. Dix, Louisville.
95 What Is Opportunity of Minister to Assist in Public Health Work, and How to Secure His Active Assistance. E. L. Powell, Louisville.
96 Idem. W. W. Landrum, Louisville.
97 Antituberculosis Campaign. U. V. Williams, Frankfort.
98 Cases of Cerebrospinal Meningitis with Deductions. E. B. Bradley, Lexington.
99 Certain Surgical Conditions of Upper Right Quadrant of Abdomen. W. Barrow, Lexington.
100 Gunshot Wounds of Intestines. C. Graham, Henderson.
101 Intestinal Obstruction. W. D. Haggard, Nashville, Tenn.
102 Care of Breast During Pregnancy and Lactation. S. L. Beard, Shelbyville.
103 Etiology and Pathogenesis of Puerperal Eclampsia. G. J. Herman, Newport.
104 Sense and Nonsense of Domestic Medicine. J. J. Youtsey, Newport.

88 and 89. Abstracted in THE JOURNAL, Nov. 30, 1912, p. 1999.

Medical Record, New York

March 15, LXXXIII, No. 11, pp. 461-596

105 *Malignant Disease of Tongue and Mouth. R. Abbe, New York.
106 Occupation Neuroses: Nature and Treatment. T. A. Williams, Washington, D. C.
107 Municipal Clinic of San Francisco. J. Rosenstirn, San Francisco, Cal.
108 Tuberculosis in Early Life. E. P. Copeland, Washington, D. C.
109 *Use of Fetal Membranes in Skin Grafting. N. Sabella, New York.

105. **Malignant Disease of Tongue and Mouth.**—During the past ten years Abbe has observed in private practice, 40 cancers of the tongue, 15 leucoplakias, 27 sarcomas of the jaw and epuli, 40 sarcomas of the pharynx and tonsil, and carcinomas of mouth and cheeks, besides many tumors of the lips, palate, and buccal mucosa. As the result of his observations he has reached the conclusion that thorough surgery is still the supreme reliance in eradication of malignant disease of the mouth and early resort to it is the patient's chief hope of cure. Radium, he says, has many interesting conquests in this field, but in advanced cases of cancer its good effect is transient; in giant-cell sarcoma it is a specific cure. He is convinced that the vicious causative effect of tobacco in the mouth is demonstrated, and that leucoplakia has no curative remedy unless it be radium.

109. **Fetal Membranes for Skin Grafting.**—The amnion and umbilical cord, Sabella says, can be utilized to good advantage in skin grafting. Before cutting the grafts, he advises carefully looking over the membranes for any abnormality or diseased portion. Observe whether there are any diseased parts or ulcerations, and question the patient from whom these organs are obtained as to her previous history. If such caution is observed there will be no chance of infecting the patient. After the organs have been found free from disease or abnormality they are placed in a bottle containing normal salt solution. Before placing the organs in the bottle containing the salt solution they should be immersed in warm water to wash away any of the vaginal excretion which they have taken up during passage through the vagina. By keeping them immersed in normal saline solution and changing the solution a few times before the use of the organs they will keep alive for over seventy-two hours.

When the patient is ready for grafting the organs are dipped several times in a new solution of normal saline and then they are cut up into pieces in any shape and size desired.

The cord should be cut open and the blood-vessels scraped out. This is done so that the membrane which is to be used shall be free from any hindrance to its early union. The surface of the cord and amnion which is to be placed on the ulcer should be the continuation of the inner surface of the cord. The jelly of Wharton in the cord is of an alkaline reaction, and because of this fact it is easily absorbed and ultimately the membrane covering the cord is left on the surface of the wound.

The surface of the parts to be grafted must next be inspected. If there are undermined edges the edges should be cut away until healthy skin is reached. Then the surface is carefully cleaned and disinfected. If there are any exuberant granulations they should be leveled off to the skin. Then the surface is thoroughly asepticized. All bleeding must have

ceased, whether the wound is recent or granulating. If oozing of blood persists the wound surface must be covered by a protective layer of rubber tissue, of silver foil, guttapercha tissue, oiled silk, or such like material, over which sterile gauze is applied and the skin grafting put off till next day. When on the next day the bleeding has ceased the grafting should take place.

The area to be grafted should be cleaned thoroughly first with peroxid of hydrogen which is washed off with a bichlorid solution of 1:1,000 or 1:10,000. After the use of the above the parts are next washed with decinormal salt solution. After thoroughly cleansing the area the grafts are placed over the wound carefully and smoothly.

When the whole wound is covered with grafts place over them oiled silk fenestrated so as to facilitate drainage. The next dressing should be ordinary sterile gauze and soaked in decinormal salt solution or Carrel's solution.

Over this gauze soaked with decinormal salt solution a damper or rubber tissue should be placed, so that the moisture may not evaporate. Over the damper more sterile gauze is placed and ordinarily dressed. The first dressing of sterile gauze should be daily changed and soaked in normal salt solution. In order that the grafts be not moved during the daily changing of the dressings, Sabella places collodion around the fenestrated oiled silk. No antiseptic lotion should be used, only the saline solution. The same kind of dressings should be applied until the healing process is complete. Very large surfaces can be made to heal in a short time by this process. Sabella has tried this method on several patients and states that he has gained great success with it.

New York Medical Journal

March 15, XCVII, No. 11, pp. 529-580

110 Acidosis. W. S. Gerdon, Richmond, Va.
111 Blood and Sputum in Croupous Pneumonia. R. C. Rosenberger and C. V. Dorworth, Philadelphia.
112 Connection of Sexual Apparatus with Ear, Nose and Throat. V. Dabney, Washington, D. C.
113 Disease of Nasal Accessory Cavities. S. Oppenheimer, New York.
114 Uric Acid Calculi. W. H. Porter, New York.
115 Medical Efficiency. I. S. Wile, New York.
116 Extrasystoles. S. Neuhof, New York.
117 Specific Treatment of Pellagra. E. H. Martin, Hot Springs, Ark.
118 Carbonated Baths. I. M. Groedel, Bad-Nauheim, Germany.
119 Tuberculosis. M. W. McDuffie, New York.
120 Whooping-Cough. S. R. Kelin, New York.
121 Appendicitis or Not Appendicitis. H. A. Schatz, Philadelphia.

Southern Medical Journal, Nashville

March, VI, No. 3, pp. 147-217

122 Compelling Health-Study of Attitude. R. S. Carroll, Asheville, N. C.
123 *Symptoms and Clinical Diagnosis of Bubonic Plague. J. B. Guthrie, New Orleans.
124 *Diagnosis of Plague. R. L. Wilson, Charleston, S. C.
125 Prophylaxis of Plague. J. E. Beck, Mobile, Ala.
126 Toxemias from Alcohol. T. D. Crothers, Hartford, Conn.
127 Pediatrics. W. Weston, Columbia, S. C.
128 Sclerema Adiposum with Report of Case. J. R. Snyder, Birmingham, Ala.
129 Malarial Hemoglobinuria: Report of Case. A. Hand, Shubuta, Miss.
130 Review of 131 Cases of Pellagra. B. E. M. Green, Milledgeville, Ga.
131 Acute Pancreatitis with Report of Four Cases. S. H. Watts, Charlottesville, Va.
132 Some Modern Factors of Safety in Surgery. J. S. Horsley, Richmond, Va.
133 Identity of Cause of Aseptic Wound Fever and Post-Operative Hyperthyroidism and Their Prevention. G. W. Crile, Cleveland.
134 *Management of Fractures of Elbow. I. Cohn, New Orleans.
135 Nail Occluding Third Bronchial Ramus; Upper Bronchoscopy. Recovery. J. W. Jervey, Greenville, S. C.
136 Treatment of Chronic Laryngeal Stenosis by Specially Devised Intubation Tubes. H. Dupuy, New Orleans.
137 Cause, Prevention and Cure of Deafmutism. M. M. Stapler, Macon, Ga.
138 Surgical Treatment of Infections of Peritoneum with Special Reference to Immediate Sterilization of Same. J. A. Crisler and E. J. Johnson, Memphis, Tenn.

123 and 124. Abstracted in THE JOURNAL, Dec. 14, 1912, p. 2182.

134. **Management of Fractures of Elbow.**—Reduction, says Cohn, the essential factor in the treatment of all fractures, is maintained with the forearm in the hyperflexed position without the aid of artificial devices, such as splints. The triceps is a natural posterior splint; further, the lever action of the flexor muscles of the forearm is overcome by the relaxation which the hyperflexed position permits; there is, therefore, no tendency on their part to increase the deformity into the bend of the elbow. In fractures of the external condyle the position of hyperflexion brings the head of the radius closer to the condyles, and, with the aid of the triceps, prevents the displacement. Practically the same anatomic considerations indicate the use of this method in all fractures involving the condyles or portions of them. Cohn cites eleven cases. Of this number there are eight perfect results. The three cases in which there is limitation of motion were seen several days after the accident, in one case eleven days, and in two of these cases there was a fracture of the olecranon, complicating the fracture of the humerus. Therefore Cohn concludes that in the series of fractures in which the olecranon was not injured, eight out of a possible nine have perfect results, the ninth case not having been seen for eleven days. The management of these cases has been about as follows: Reduction has been accomplished by temporarily hyperextending to overcome any impaction, after which the elbow is acutely flexed, and the flexures are well powdered, the arm and forearm are padded well, and a roller bandage is applied. The bandage should include the hand. If this last-named procedure is not carried out, there will be a great amount of swelling of the hand, which will, in turn, be a source of alarm to the parent. The patient is always seen the following day, and, if necessary, the bandage is changed. At least twice a week the bandage is removed for the purpose of inspection; if no untoward accident has happened, the parts are carefully washed and redressed, as before, until the tenth or twelfth day. At this time there should be sufficient temporary callus thrown out to prevent a recurrence of the deformity unless the manipulations are too severe. After the twelfth day the dressings are changed every three days, and at each dressing the flexion is diminished until, at the end of about four or five weeks, the arm is fully extended. The position is maintained by the use of an anterior splint which has a hinge joint at the elbow (Levis). No great amount of massage or passive motion is allowed. After the fifth week the arm is taken out of all bandages and allowed to hang by the side. The patients are encouraged to practice the ordinary movements of the joint. If there is some limitation of motion on account of callus formation, dry heat and massage are made use of. Usually by the eighth week the patients have been able to use the arms with freedom.

Tennessee State Medical Association Journal, Nashville

March, VI, No. 11, pp. 435-476

139 Diagnosis of Prostatic Hypertrophy. P. Bromberg, Nashville.
140 Pediatrician as Dietetist. M. H. P. Panhorst, Jonesboro.
141 Goiter et Hyperthyroidism. J. B. Haskins, Chattanooga.
142 Artificially Induced Climatic Conditions as Adjunct to Treatment of Tuberculosis in Early Stages. D. M. Pearce, Union City.
143 Serotherapy of Tuberculosis. T. D. Cloyd, Mosheim.
144 Eye Injuries. C. B. Wylie, Chattanooga.
145 Subconjunctival Injection in Eye Diseases. E. B. Cayce, Nashville.
146 Needs of Eye, Ear, Nose and Throat Surgeon in General Hospitals. F. Allport, Chicago.
147 Pathologic Conditions of Gall Tract and Treatment. T. O. Burger, McMinnville.

West Virginia Medical Journal, Wheeling

March, VII, No. 9, pp. 289-324

148 Placenta Praevia. H. M. Campbell, Parkersburg.
149 Significance of High Red Blood-Corpuscle Count. C. W. Sawyer, Marion, O.
150 Puerperal Eclampsia. A. P. Butt, Davis.
151 Observations of a General Practitioner on Entering Institutional Work. C. A. Barlow, Spencer.

Wisconsin Medical Journal, Milwaukee

February, XI, No. 9, pp. 273-306

152 Needs of Eye, Ear, Nose and Throat Surgeon in General Hospitals. F. Allport, Chicago.

153 Symptoms and Diagnosis of Pathologic Conditions of Cecum and Terminal Ileum. N. Andrews, Oshkosh.
154 *Abnormal Pelvic Conditions in Insane Women and Their Relation to Mental State. M. Sauthoff, Mendota.
155 For an Earlier Diagnosis of Tuberculosis. G. L. Bellis, Wales.
156 Retention of Urine. E. A. Fletcher, Milwaukee.

154. **Abnormal Pelvic Conditions in Insane Women.**—Two hundred insane women taken without selection from the admissions to one of the Wisconsin insane hospitals were subjected to a pelvis examination by Sauthoff. One hundred and three were found to have some lesion that was grave enough to cause symptoms, or to have had lesions grave enough to have required operation before admission. Very small cervical lacerations with no erosions and very small tears of the perineal body with no symptoms were not classed as abnormal. In many of the women who have some pelvic abnormality more than one lesion was found and in the entire 103 abnormal cases there were 251 pathologic conditions. In noticing the character of these pathologic states, a non-adherent retroverted uterus was found in 33 per cent. of the abnormal cases, an adherent retroverted uterus occurring in only 5 per cent. Laceration of the perineum was found in 27 per cent.; arrest of development in about 12 per cent.; inflammatory lesions were found in about 54 per cent. but only a few were acute. Cervical tears of any magnitude occurred in about 16 per cent.; polypi were few in number, as were the cases of other tumors, and there was not a single case of malignancy. There were many cases that showed a post-operative condition in which the operation had been of greater or less severity varying from a perineorrhaphy to a panhysterectomy. This list, however, does not include those patients who had had an immediate repair of the perineum following parturition. It was found that 19 per cent. of the abnormal women and 10 per cent. of the entire number examined had had operations for the relief of some pelvic lesion and that in 60 per cent. of these cases the operation was performed after the onset of the mental symptoms and in only one case has it been possible to ascertain positively that the mental trouble came on after the operation. While the pregnant state was not classed as abnormal, 3½ per cent. of the whole number were in various stages of pregnancy at the time of their admission to the hospital and two-thirds of these cases were of the manic depressive group. In the infective exhaustive group 75 per cent. showed lesions. The cases of involution melancholia showed 61 per cent. of abnormal cases. The manic depressive group showed 58 per cent. and the dementia praecox 47 per cent. abnormal. In the paranoic condition and the epileptic psychoses there were only about one-third of the cases that showed lesions. In the alcoholics, the imbeciles and the psychoses with other brain or nervous diseases there were about one-half of the cases abnormal. Forty per cent. of the constitutionally inferior individuals and 43 per cent. of the senile cases showed lesions. The cases of paresis were all of a chronic inflammatory nature and those of the infective exhaustive group were more acute. The manic depressive cases showed a relatively large number of lacerations, misplacements and subacute or chronic inflammatory conditions, while among the cases of dementia praecox there was a large number of cases showing defect of development. Two-thirds of all the cases of arrest of development were found in the dementia praecox group and in those cases listed as imbeciles and inferiors. About fifty-three of the 103 abnormal women received treatment. The treatment consisted of conservative measures such as douches, tampons, pessaries, etc., with the result that none of the patients have seemed to grow worse as far as the mental condition is concerned, while twenty have shown various degrees of improvement, and in thirty-three cases there has not been very much, if any, change in the mental condition. Of these thirty-three cases some are still in the hospital. There was a greater improvement in the manic depressive group but this form of insanity tends toward recovery and it would seem doubtful if the recovery had been the result of the treatment, though it is impossible to state that the attack might not have been shortened by the treatment and the removal of this source of irritation.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Australasian Medical Gazette, Sydney

January 18, XXXIII, No. 3, pp. 49-72

1 Toxemias of Pregnancy. T. G. Wilson.
2 *Idem. C. T. De Crespigny.

January 25, No. 4, pp. 73-96

3 Removal of Thyroid Under Local Anesthesia. H. C. Hinder.
4 *Two Cases of Rare Skin Diseases. W. McMurray and L. Johnston.
5 Case of Anaphylaxis, Following Injection of Diphtheria Antitoxin. D. G. Hunter.

February 1, No. 5, pp. 97-120

6 *Biochemistry of Symbiotic Growth of Aerogen and Anaerogen Coliform Organisms. B. Bradley.
7 Eclampsia. A. G. Cribb.

February 8, No. 6, pp. 121-144

8 *Interesting Case of Cesarean Section. H. M. O'Hara.
9 Two Cases of Arteriorrhaphy. C. MacLaurin.
10 Frequency of Micturition Cured by Ventrofixation of Uterus. W. T. Chenhall.

2. **Toxemias of Pregnancy.**—In support of the statement that lower eliminative power and lowered resistance predispose to the toxic state, De Crespigny describes two kidneys which were removed from the body of a multipara, who, previous to her pregnancy, had albuminuria, and who died in the fourth month from toxemia. The ureters and pelves were dilated from pressure of the gravid uterus. The substance was tough, the capsule adherent, and the peeled surface slightly granular; the cortex was confused, and the organs much congested; they were of normal weight. Microscopically De Crespigny could see evidence of an interstitial fibrosis on which had been engrafted acute congestion, degeneration of the epithelium of the convoluted tubules and patches of inflammatory reaction. The kidneys to the naked eye were typical examples of the "large pale kidney;" microscopically they showed evidence of subacute tubular and proliferative nephritis. In certain cases, he says, puerperal convulsions seem to be due rather to renal failure than to hepatic involvement.

The following case is cited to illustrate this point: A nulliparous woman, aged 28, had three fits during one afternoon toward the end of the eighth month. She was admitted in a comatose condition within a few hours. Parturition was induced, and the child was born dead the next day. During the next four days she regained consciousness, and had no further convulsions, but she passed only 2 oz. of urine per day, and it was loaded with blood and albumin. On the fifth day after the fits she had three more fits in rapid succession, and died in coma within four or five hours. An autopsy was performed; the liver weighed 40 oz., and presented no macroscopic abnormality. Microscopically one could see slight scattered degeneration towards the periphery of the lobules. The kidneys, however, showed acute glomerulo-tubular nephritis. They weighed 7 ounces each, and were engorged with blood. The capsules were edematous. Microscopically, the tubules were filled with breaking down red corpuscles; the collecting tubules contained blood-casts and leukocyte casts. The epithelium was degenerated in the convoluted tubules, Bowman's capsules were distended by back pressure, and the glomeruli were collapsed. There were patches of leukocyte reaction and numerous capillary hemorrhages. The uterus was in a condition of acute septic puerperal metritis.

4. **Rare Skin Diseases.**—The first case cited by McMurray was that of a male, age 10 years. The father had been affected with a similar condition since birth, but there was no history of the disease in any other member of the family. The disease appeared in the first month of life. The parents noticed that blisters appeared on the feet and arms of the child. Whenever the baby kicked, a blister appeared on the part which came in contact with the bed. The parts affected were those most exposed to pressure, namely, the legs, ankles, feet, elbows, wrists and knuckles. The blebs appeared with great rapidity and varied considerably in size. The pressure on the knuckles from playing marbles was sufficient to cause blebs as large as a walnut. The finger- and toe-nails were atrophic. A few

epidermal cysts were present on the sites of the old lesions on the hands.

The second disease, monilethrix, occurred in a woman, age 30 years, and her two children, age 6 and 3 years, respectively. The affection occurred in the first month of life in all three cases. There was no history of any other member of the family being affected, the disease being confined to the mother and her two children. The disease began in the first month of life following a shedding of the first hair which was normal in appearance. Monilethrix is a very rare affection of the hair. The hair on the scalp of the patient is quite short, irregular, dull, lusterless, broken off and has a scorched appearance. This is especially noticeable on the occipital region, no doubt caused by rubbing on the pillow during sleep, causing the hair to fracture. The temporal regions are less affected. The eyebrows are thin and atrophic. On closer examination the hairs are broken off, and some close to the scalp at their point of exit from the follicles. This is especially noticeable on the occiput, which gives the appearance of the black dot variety of ringworm or comedones. In many places the follicles are surrounded with scaly papules as in keratosis pilaris. Microscopically the hairs show the characteristic spindle-form appearance.

6. **Biochemistry of Symbiotic Growth of Aerogen and Anaerogen Coliform Organisms.**—Bradley found that when *B. typhosus*, which is capable of producing acid on mannitol, is inoculated into mannitol-litmus-peptone water in company with *B. morgan*, No. 1, which by itself does not visibly affect mannitol media, but which produces acid and gas on glucose media, then the result of the combined action is shown by the production of acid and gas. The above symbiotic gas production occurs with similar and suitably arranged pairs of organisms when growing together in either lactose, dulcitol or arabinose. *B. morgan* is capable of producing gas from the sterile products of *B. typhosus* grown in mannitol-litmus peptone water. The conditions favoring gas production under these conditions are apparently intimately connected with, among other things, the time of incubation of the typhoid culture, and consequently with a degree of acidity. Where the acidity is artificially neutralized, there is generally noted much increased readiness of gas production, but instances are available showing that this result is not always attained, possibly the failure being due to overalkalinization.

Under certain conditions, *B. morgan*, No. 1, neutralizes the acidity of the mannitol typhoid cultures. This neutralization or reversal of reaction occurs apparently when the acidity is of slight degree. Although in most cases in which tubes showed gas formation from the unneutralized mannitol cultures, this reversal of reaction occurred; yet, as in one case gas formation was marked without reversal, and in another experiment reversal occurred, and no gas formation, it is doubtful if the autoneutralization has any definite favoring influence on the gas formation. *B. morgan*, in company with numerous other coliform organisms produces gas from 1 per cent. sodium formate peptone water. It differs from the vast majority of the coliforms Bradley has tested in its marked power of gas production from this salt. This is specially to be noted, inasmuch as the strain Bradley has produces more gas from sodium formate than do many colon organisms which produce nearly ten times as much gas from glucose as does *morgan* No. 1. The essential nature of the symbiotic effect was noted in the production of formic acid by *B. typhosus*, and its utilization by *B. morgan* to produce gas. Thus, Bradley concludes from his work, and from others quoted, that in the catalysis of sugars by gas formers, formic acid is formed and subsequently split up into gas; yet it is clear also that this process is not the only method used by all organisms. He believes that there are several processes side by side leading to similar final results.

8. **Case of Cesarean Section.**—A fibroid tumor in the lower segment of the uterus, filling up the pelvic outlet, was the obstruction to labor in the case cited by O'Hara. A cesarean section was made. After the uterus was emptied a supravaginal hysterectomy was done, removing the tumor with the uterus.

Clinical Journal, London

February 19, XLI, No. 20, pp. 305-320

11 *Septic Infection Versus Chronic Intestinal Stasis: Legality of Ileocolostomy for Arthritis. P. Daniel.

February 26, No. 21, pp. 321-336

12 Eczema, and Some Eruptions Often Mistaken for Eczema. H. G. Adamson.
13 Some Forms of Chronic Arthritis in Seamen. D. Duckworth.
14 Occlusion of Common Carotid by Metal Band. R. A. Stoney.

11. **Septic Infection vs. Chronic Intestinal Stasis.**—Daniel has learned from practical experience that chronic intestinal sepsis (i. e., "catarrh") is a very prevalent cause of constipation, and that from time to time such patients suffer from attacks of looseness of the bowel (hence the name "intestinal catarrh"), but that persistent diarrhea only occurs when definite colitis, especially sigmoiditis, supervenes. In short, sepsis first leads to stasis. Daniel is firmly convinced in his belief that the most potent factor in inducing all intestinal lesions commencing in the mucosa, and including constipation, is oral or nasal accessory sinus sepsis. To gastro-intestinal sepsis directly he attributes most osteoarthritis, while the varieties known as rheumatoid arthritis he considers are due to a combination of gastro-intestinal and genito-urinary sepsis.

He agrees with Lane in accepting the widely spread evils which may arise from the disordered gastro-intestinal tract, but does not believe that the primary cause is mechanically evolved bands and kinks which lead to stasis and the stasis in turn to auto-intoxication. Daniel holds that the evil is primarily an infection, and recurring reinfection, of the gastro-intestinal tract, and is in direct proportion to the number and virulence, also to the varieties, of the infecting germs, and that all the ill-effects Lane mentions may arise without any stasis in any part of the tract. Give these patients correct treatment, i. e., cleanse their mouths, nasopharynges, antra, etc., so removing infection, give them oils, suitable laxatives and diet, and the number of cases requiring colectomy will be at once reduced to those unfortunates in whom the damage done to the mucosa has progressed to ulceration.

Daniel also disagrees with Lane as to the origin of the kinks and bands which he blames for the stasis. In common with most pathologists he attributes the formation of the bands, etc., to local peritonitis, the result of bacterial activity in the underlying hollow viscus or in the lymph tract leading from and draining its wall, which necessarily implies that bacterial infection of the mucosa is primary; since absorption of toxins does not take place through the healthy mucosa, the bands and kinks are secondary to this pathologic absorption; stasis may or may not result from the infection, therefore may or may not precede the formation of the bands, etc.

He is also totally at variance with Lane in the line of treatment he adopts in general, especially in its bearing on arthritis. He believes that if the infection is cured, i. e., the origin of the infection in the mouth and elsewhere is cured, the stasis in the vast majority of cases will tend to cure spontaneously, and if appropriately aided the patients entirely recover, i. e., they are damaged, but the stomach and intestine functionate sufficiently well, often as if the patient were normal; should bands or other grave pathologic sequelae have formed, the recovery will be partial and proportionate to the lesions. The bowel acts simply as a test-tube, but one which not only houses the bacteria, but permits the removal of their effete products, their end-toxins, to which fact is due the symptoms of toxemia. Hence, all evidence suggests that the grave constitutional symptoms which Lane attributes to stasis, a mechanical condition, are due to absorption of bacterial end-products, which takes place without stasis, and then produces just such symptoms as Lane credits to mechanical stasis.

It is Daniel's belief that typhlitis is the earliest lesion to arise in the case of intestinal sepsis, because the normal retardation in the passage of food which occurs in the cecum permits of a great concentration of the bacteria swallowed, and it is therefore especially subjected to toxic insults in which the peritoneum covering it participates, and sooner or later the appendix with its mesentery and their peritoneal covering is involved, and from their juxtaposition the two peritoneal layers readily cohere, leading to kinks, etc.

Indian Medical Gazette, Calcutta

February, XLVIII, No. 2, pp. 45-88

15 Differential Blood-Count in Dengue. W. L. Harnett.
16 Problem of Dengue, Three-Day and Seven-Day Fever. W. L. Hossack.
17 Teleologic Working Theory of Asymbiotic Relations of Malarial Plasmodium to Its Alternative Hosts—Man and the Anopheles Mosquito. N. P. O. Lalor.
18 Sanitary Organization of Army in India in War. P. Hehir.
19 Effect of Overcrowding in Barracks on Tubercular Affections Among Gurkhas. C. H. Smith.

Journal of Obstetrics and Gynecology of British Empire, London

February, XXIII, No. 2, pp. 65-128

20 Burton ("Dr. Slop"): His Forceps and His Foes. A. Doran.
21 Immunology of Pregnancy. A Review. H. L. Murray.
22 *Teratoma of Thyroid in Fetus. A. W. Russell and A. M. Kennedy.
23 Needles in Abdominal Cavity as Complication of an Hysterectomy. A. Smith.
24 Case of Ovarian Pregnancy with Full-Time Fetus. T. B. Grimsdale.
25 Technic of Amputation of Vaginal Cervix. V. Bonney.

22. Teratoma of Thyroid in Fetus.—Several important points are emphasized by the authors in connection with this case. It was associated with hydramnios, the liquor amnii measuring 14 pints. The presentation was abnormal—a brow—and there was consequent delay and difficulty in labor. This is as might be expected, proper flexion of the descending head being prevented by the tumor under the chin. The fetus was fully developed, mature and a female. Such deformities have occurred more frequently in the male and the birth has usually been premature. No hereditary influence could be discovered. The most important and interesting feature of the present case is its pathologic structure, which proves it to be a true teratoma of the thyroid. The cervical tumor formed a lobulated swelling in front of the neck about the size of a large Jaffa orange. It was situated beneath the deep cervical fascia and, vertically, in the middle line it extended from the symphysis menti to the suprasternal notch. Laterally the mass extended outward on either side of the middle line but more to the right than to the left. The sterno-mastoid muscle on the left side was flattened on the left lateral aspect of the tumor, whereas on the right side the tumor extended further out and overlapped the right sterno-mastoid muscle.

The upper margin of the tumor was bounded by the lower margin of the mandible; the lower margin of the left lobe was bounded by the clavicle, whereas the right lobe overlapped the clavicle and was situated at a lower level. Probably about two-thirds of the bulk of the tumor mass was situated on the right of the middle line of the neck.

The tumor had a distinct fibrous covering and could be more or less easily shelled out from all the structures of the neck, except the larynx, trachea and esophagus. Anteriorly three principal lobes were demarcated. The smallest one was in the middle and occupied the upper third of the mass. It was situated partly in the middle line of the neck but the greater bulk of it was to the right of the middle line. The next largest portion formed a somewhat rounded mass situated to the left of the first portion, a shallow sulcus lying between them. The third and largest portion was equal in bulk to the first two together and formed the right lobe of the tumor. It was separated from the central smallest lobe by a distinct sulcus; it formed a mass to the right of and below the central lobe and was continuous round the under surface of the latter with the left lobe. A few small knob-like lobules were evident on the surfaces of the left and the central lobes. Posteriorly the trachea and esophagus ran down on the surface of the tumor.

The tumor was definitely seen to have its origin in the thyroid and the portion corresponding to the thyroid was cystic, the cysts containing colloid or mucoid material. The tumor surrounded the trachea in front and on either side and was attached to it, and its attachment extended from the root of the tongue downward to a short distance below the thyroid cartilage. Histologic examination of several portions of the thyroid tumor showed that very little thyroid tissue was present. There was an adenomatous tissue which in many places was cystic and contained colloid material, in other places it showed numerous intracystic papillomatous growths, and the whole was supported by a fibrous tissue stroma. The epithelium of this adenomatous tissue was much richer than that of ordinary thyroid tissue. But the greater bulk of the tumor was made up of heterogeneous tissue-elements, and structures representing all three layers of the embryo were present. The tumor was undoubtedly a teratoma.

Stratified squamous epithelium was present covering a substratum of fibrous tissue containing many hair follicles representing embryonal scalp. Gland tubules, the epithelial lining of which had stratified squamous epithelium with the characters of epidermis of the embryo were present. Other gland tubules are present showing low columnar ciliated epithelium and containing mucus. A third group was lined with tall columnar ciliated epithelium and goblet-cells. Sweat glands could also be distinguished. Portions of pigmented columnar epithelium were observed and probably represent embryonic retina. Bone and hyalin cartilage were seen in places, and there was one piece showing bone developing from cartilage. Embryonic nerve tissue was present in abundance. In many places the various structures seem to be embedded in a gliomatous matrix.

Medical Press and Circular, London

February 19, XCV, No. 3850, pp. 189-212

26 *Intestinal Dyspepsia in Children. E. Cautley.
27 Bearing of Sex on Operation in Appendicitis. H. Macnaughton-Jones.
28 Some More Surgical "Don'ts." C. H. Whiteford.
29 Vaccine Treatment in General Practice. L. Grant.

February 26, No. 3851, pp. 213-240

30 Heart Disorders and Gastro-Intestinal Tract. J. F. H. Dally.
31 Appendicitis: Plea for Immediate Operation. E. Owen.
32 Hepatic Asystole in Chronic Hydruric Nephritis. J. Castaigne.

25. Intestinal Dyspepsia in Children.—The treatment of this condition, Cautley says, is general, dietetic and local. In severe cases, with marked neurotic symptoms, a few days in bed is a useful preliminary. Mere local treatment is insufficient, for the malnutrition implies general ill health. Prevent physical or mental overstrain, and forbid working for examinations. Change of air and surroundings cure many cases quickly, perhaps through the mental effect, the holiday and the increased metabolism due to an open-air life. Keep the abdomen and extremities warm and dry. Attend to the teeth. Remove enlarged tonsils and adenoids, if present.

Let the diet consist of simple, regular, mixed meals. Reduce milk, if it is given in excess and dilute it. Many of these children are stuffed with milk, on account of the malnutrition, and are made worse thereby. Limit the amount of fermentable foods, sweets, jams and carbohydrates generally. It is rarely necessary or advisable to omit them entirely. Malted and dextrinized foods, and honey, are the most suitable carbohydrates. As the child improves, try porridge or other oat foods and brown bread. At first the diet should be limited to eggs, fish, meat, bacon, butter and dripping, dry toast, rusks and malted foods. Greens, passed through a sieve, and ripe fruit may be added later. New bread, new potatoes, fried fish, hot greasy foods, pickles, tubers and stringy vegetables must be avoided. Cream suits a few children, especially country cream devoid of preservatives, and is best given with stewed fruit. On the whole, Cautley prefers to rely on butter, margarin, bacon fat and beef dripping to supply the necessary hydrocarbons. Many children develop intestinal indigestion because they are stuffed with cream and cod-liver oil, on the supposition that the malnutrition may be of tuberculous origin. For the same reason they are sent to the seaside, whereas country air is much more suitable.

Give no cod-liver oil or hypophosphites. If there is constipation, especially if there is also mucus in the stools, give grey powder, or rhubarb and soda, at night, and a dose of sodium sulphate or a laxative mineral water in the morning, and prescribe a mixture of alkali, nux vomica and a vegetable bitter to be taken three times a day before meals. Mild alcoholic drinks are also useful. Other appropriate remedies are bismuth and carbonate of magnesia for diarrhea; charcoal and salol for tympanites and excess of mucus; decoction of aloes, dr. ½-i before food,

for voracious appetite; calomel for white stools; and small doses of Dover's powder or tincture of opium for lientery. Much more reliance should be placed on dietetic measures than on drugs, and attention should be paid to general hygiene, sleep, exercise and amusements.

Archives de Médecine des Enfants, Paris

February, XVI, No. 2, pp. 81-160

33 Alimentary Anaphylaxis to Eggs. (Anaphylaxie alimentaire aux œufs.) E. Lesné and C. Richet.
34 Tuberculosis and Asthma in Children. (Rapport entre la tuberculose et l'asthme dans l'enfance.) A. Rongel.
35 Arterial Pressure in Children. M. Leitao.
36 Diphtheritic Paralysis. (Diphthérie paralysante.) I. David.
37 Infantile Scorbutus; Three Cases. J. Comby.

Journal de Médecine de Bordeaux

February 16, XLIII, No. 7, pp. 99-112

38 *Indications and Results of Medical Treatment of Tuberculosis of the Kidney. J. Castaigne.

February 23, No. 8, pp. 115-128

39 Typography and the Hygiene of the Eyes. E. Ginestous.

38. **Medical Treatment of Tuberculosis of the Kidney.**—Castaigné gives statistics showing that medical treatment is liable to give good results in the early stages of a tuberculous process in the kidneys. After cavities have developed, with a purulent focus opening into the ureter, there is no hope save from nephrectomy. The early stage with more or less abundant granulations gives rise to symptoms such as recurring hematuria appearing and disappearing without apparent cause; simple albuminuria with cystalgia or nocturnal incontinence of urine, or simple albuminuria without any other sign of nephritis. Any of these may be the manifestation of an incipient tuberculous process in the kidney, and he has often found bacilli in the urine from one kidney in such cases while there was no bacillemia. He thinks that a syndrome like this should be treated with medical measures and not by nephrectomy. He is convinced that tuberculosis of the kidney is more frequent than hitherto supposed and that it often heals spontaneously.

Journal d'Urologie, Paris

February, XXX, No. 2, pp. 129-288

40 Leukoplasia of Kidney Pelvis. (Cas de leucoplasie du bassinet.) P. Lecène.
41 Both Kidneys Studded with Cysts. (Etude anatomo-pathologique et classification pathogénique d'un cas de reins polykystiques bilatéraux.) J. Anglada.
42 Tuberculosis of Child Kidney; Seven Cases. (Tuberculose rénale chez l'enfant. Cathétérisme à vision directe.) H. L. Rocher and J. Ferron.
43 Operative Treatment of Retention of Urine in the Kidney. (Les operations plastiques portant sur le bassinet et la partie supérieure de l'urétère dans le traitement des rétentions rénales.) H. Eliot.
44 *The Future in Treatment of Gonorrhea. (L'avenir du traitement de la blenorragie.) J. Janet.

44. **The Future of Gonorrhea Treatment.**—Janet regards gonorrhea and syphilis as, next to tuberculosis, the greatest scourges of humanity in civilized countries. He ranks them even above cancer, as cancer attacks those who have played their part in the world, while the venereal diseases attack the flower of the race and render them sterile or vitiate their reproductive power in their prime. He says that prostitution is unquestionably the nest of venereal disease, and that it is hopeless to expect to eradicate it among prostitutes. According to the statistics of Paris, no prostitute escapes syphilis longer than four years and none escapes gonorrhea longer than four weeks. The only thing that can be done is to provide for individual prophylaxis of their customers and for immediate abortive treatment when infection occurs. He insists on commencing treatment at the first sign of trouble, and has found this system of abortive treatment so effectual that he has had occasion to apply the abortive treatment on three separate occasions on one patient and twice on two others. The future hope of prophylaxis lies in teaching men that all prostitutes, open or clandestine, are infected and dangerous, and that if individual prophylaxis has been omitted or has failed they should apply for abortive treatment without a day's delay

Lyon Médical, Lyons

February 23, XLV, No. 8, pp. 377-432

45 The Granular Substance of Sarcosporidia in Non-Malignant Epithelial Tumors. M. Jaboulay.
46 Case of Postoperative Bulbo-Spinal Mysasthenia. (Syndrome de Erb-Goldflam.) Plc and Blanc-Perducet.

Presse Médicale, Paris

February 15, XXI, No. 14, pp. 129-136

47 Phagocytes the Source of Hemolysins. (L'origine des hemolysines.) C. Achard, C. Foix and H. Salin.
48 Bedside Tests for Acetone and Diacetic Acid. S. Bonnamour and A. Imbert.

February 19, No. 15, pp. 137-144

49 The Bile. (Quelques considerations sur le rôle de la bile.) H. Roger.

February 22, No. 16, pp. 145-156

50 Hexamethylenamin in Typhoid. (Les injections sous-cutanées d'urotropine dans le traitement de la fièvre typhoide.) H. Triboulet and F. Lévy.
51 Case of Multiple Tuberculous Perforation of the Intestines. J. Abadie.

50. **Albuminuria Under Hexamethylenamin in Typhoid.**—Triboulet and Levy gave a subcutaneous injection of 0.2 gm. hexamethylenamin in 1 c.c. of water to a child of 6, morning and evening, gradually increasing the doses up to 4.5 or 6 gm. a day. The dosage for older children and adults was proportional to this. They give the details of three cases in children 7, 12 and 14. All seemed to benefit materially by the medication and the only by-effect noted was a slight brief albuminuria due mainly to the presence of Mörner's mucoid body, a pseudo-albumin. There were only traces of serin and only a little more globulin while the microscope revealed only bladder cells or red corpuscles and there were no tube-casts, leukocytes or kidney cells. These findings excluded a tendency to nephritis as the cause of the albuminuria. They suggest rather that the albuminuria was really a pseudo-albumin of vesical rather than renal origin. Nothing was observed in any instance resembling the reaction in guinea-pigs reported by Frothingham. The tongue grew moist, the patients felt stronger, the diarrhea seemed to be influenced and the urine cleared. The temperature was normal by the end of the third week, but the pulse kept up fast for a few days longer.

Revue de Médecine, Paris

January, XXXIII, No. 1, pp. 1-80

52 *Thyroid Treatment in Epilepsy. (Opothérapie thyroidienne et Epilepsie.) E. Gelma.
53 *Headache in Acute Infections. (Cephalée dans les maladies infectieuses aigues.) H. Roger and J. Baumel.
54 Dental Caries in its Relation to General Pathology. (De l'érosion dentaire envisagée au point de vue de la pathologie générale.) Coustaing and Filderman.

52. **Thyroid Treatment in Epilepsy.**—Gelma describes two cases of typical epilepsy treated by him with daily doses of 0.5 gm. of thyroid extract. The epileptic attacks ceased, nutrition and general health improved and there was a marked gain in the mental condition. Thyroid gland changes are frequent but not universal in epilepsy, and thyroid treatment is worthy of trial not only in marked cases of goiter and myxedema but in those manifesting the milder symptoms of hypothyroidism.

53. **Severe Headache in Infectious Diseases Cured by Lumbar Puncture.**—Roger and Baumel tabulate the results in fifteen cases of severe headache in typhoid, Malta fever and other infectious diseases, in which lumbar puncture was applied. From 10 to 30 c.c. of spinal fluid was removed and in severe cases the puncture was repeated several times. Marked relief was obtained and no bad effects were observed. They believe that soluble toxic products of the infecting organism circulate in the spinal fluid, causing congestion and hypertension. This is relieved by puncture and, moreover, a certain amount of toxic fluid being removed, the intoxication of the adjacent nerve centers is decreased.

Revue Médicale de la Suisse Romande, Geneva

February 20, XXXIII, No. 2, pp. 97-176

55 Trunkless Monster. (Cas de défect partiel congénital de la colonne vertébrale et de la moelle épinière avec fente thoraco-abdomino-pelvienne.) P. Stauffer.

56 Indications for Operative Treatment of Cirrhosis of the Liver. Juliard.
57 Serodiagnosis of Syphilis. (Etude du séro-diagnostic de la syphilis par le procédé de Sabrazès-Eckenstein et de ses applications en clinique infantile.) A. Perelmann.

Semaine Médicale, Paris

February 19, XXXIII, No. 8, pp. 85-96

58 *Treatment of Hemolytic Jaundice. (Le traitement des ictères hémolytiques.) J. Parisot and L. Heully.

58. **Hemolytic Jaundice.**—Parisot and Heully have found that calcium chlorid seems to render the red corpuscles more resistant to injurious influences. They gave four patients with hemolytic jaundice daily doses of 4 gm. of calcium chlorid and in each one the red corpuscles became much less fragile. This confirmed similar experiences that have been reported by Iscovesco, Teissier and others in nephritis accompanied by abnormal fragility of the red corpuscles. Parisot and Heully advocate the use of calcium chlorid in poisoning from chloroform, ether and poisonous gases in general, mushrooms, etc., which have a destructive action on the blood. But it seems to be entirely ineffectual in congenital hemolytic jaundice. Certain facts that have been observed suggest that a deficiency in the proportion of cholesterin in the blood has some connection with the abnormal weakness of the red corpuscles. The blood improves under administration of cholesterin. This effect has been amply demonstrated in animal experimentation and was confirmed in the few clinical cases on record in which cholesterin was given to combat hemolytic jaundice. They did not find either iron or arsenic permanently effectual in their experience. Better results were obtained with serotherapy. Rénon and Richet had a patient with serious anemia from destruction of red corpuscles whose blood improved to such an extent under hemopoietic serum that the number of corpuscles actually exceeded the normal figure. Excessive functioning of the spleen seems the main factor in certain forms of hemolytic jaundice, especially the congenital type, and benefit has been known to follow splenectomy. Equally good results can be obtained with radiotherapy. Parisot has had two patients under observation for over two years whose improvement under Roentgen-ray exposures of the spleen amounted to a clinical cure. The reds by the end of seven or eight months (up to eighty exposures) had increased to about 4,000,000 and the spleen had become much reduced in size. The improvement has persisted unmodified for up to fourteen months. The benefit in these cases is another argument in favor of the assumption that the spleen is the organ responsible for congenital hemolytic jaundice, and that treatment should be addressed to the spleen.

Archiv für Verdauungs-Krankheiten, Berlin

February, XIX, No. 1, pp. 1-120

59 *Differential Diagnosis of Gastric and Duodenal Ulcer. A. Sommerfeld.
60 *Schmidt's Meat-Digestion Test. (Untersuchungen über Schmidt's Bindegewebsprobe.) J. P. Gregersen.
61 Palpation of the Appendix. (Zur Frage der Palpation des Wurmfortsatzes.) F. Bjalokur.
62 Postoperative Gastro-Intestinal Paresis. J. T. Pilcher (Brooklyn).
63 *Blotting-Paper Test for Acidity of Gastric Juice. (Ueber die sogen. Kapillaranalyse vom Magensaft nach Dr. I. Holmgren.) K. Mattisson.
64 Therapeutic Action of Ozone Introduced into Gastro-Intestinal Tract. L. Breisacher (Detroit).

59. **Differential Diagnosis of Gastric and Duodenal Ulcer.**—Sommerfeld reviews the points learned from study of forty-four cases of gastric or duodenal ulcer confirmed by an operation or necropsy. There does not seem to be any special symptom peculiar to one or the other. Occult hemorrhage is possible with both but when there is blood in the stool only, a duodenal location is more probable. Hematemesis occurred in 33 per cent. of twenty-one cases of duodenal ulcer and occult hemorrhage from the stomach in 29 per cent., but hemorrhage in the intestines without hematemesis was encountered only in duodenal ulcer (in 14 per cent. of the twenty-one cases). Periodicity of the disturbances and tardiness of the pains following eating point to duodenal ulcer. Tumors or ulcer in the body of the stomach may induce symptoms simulating those of duodenal ulcer. Determination of the exact site of the pain is quite important and the way in which the pains radiate. They extended to the left more with gastric ulcer while the radiation was toward the right shoulder and arm and liver region with ulcers near the pylorus or in the duodenum. There was no pain on pressure in 20 per cent. of the duodenal cases, in 9 per cent. of the pylorus ulcers and in 10 per cent. of the gastric ulcers, but there was diffuse tenderness in the epigastrium in 25, 27 and 40 per cent. respectively: circumscribed tenderness below the xiphoid process in 10, 18 and 20 per cent. respectively, and circumscribed tenderness to the right of the median line in 30, 36 and 10 per cent., respectively. There was circumscribed tenderness under the left costal arch with the gastric ulcers alone and only in 20 per cent., while it was observed to the right of the umbilicus, between this and the right costal arch, Mendel's point, in 15 per cent. of the duodenal cases and in 18 per cent. of the pylorus cases. The painful points in the back were found in accordance with the data in the literature. He discusses the explanation of the symptoms observed and reviews his cases in detail, emphasizing the connection between hypersecretion and spasm of the pylorus. There is an unmistakable connection between errors in diet or emotional depression and aggravation of an ulcer.

60. **Schmidt's Test for Gastric Digestion.**—Gregersen summarizes his findings in fourteen cases of achylia after application of Schmidt's technic for estimation of digestion of meat fiber, which he believes occurs only in the stomach. The patient is given 0.3 gm. carmin to stain the stool, and about 100 gm. of chopped meat is eaten at noon each day. The meat is only slightly cooked as the question is whether the raw meat is digested or not. The stools are examined for a period of four days. Undigested meat fibers were found in all but eight of the 116 examinations. On the other hand, in twenty two patients free from achylia, the digestion of the meat fiber was perfect. This Schmidt test diet proved surprisingly reliable, the presence or absence of connective tissue in the stool afterward revealed defective secretion in the stomach too slight to be detected by the Ewald test breakfast. With the Schmidt technic it is possible to detect defective pepsin digestion in the stomach regardless of its cause, whether due to defective secretion of acid or pepsin or to excessive motility. In case the test gives negative findings, the assumption of disturbance in gastric secretion may be dropped. It is a great advantage that a stomach tube is not required; all that is necessary is to have the patient eat from 50 to 100 gm. of chopped meat, raw or nearly raw. Further research with ten patients demonstrated that the administration of hydrochloric acid, in the amounts generally given, does not influence the meat-fiber test. He found that even with a meal of only 35 gm. rolls, the stomach secretes hydrochloric acid in far larger amounts than the therapeutic doses. It is consequently easy to understand that a dose of 0.5 gm. HCl would not influence the digestion of the meat fibers when 100 gm. meat had been eaten. When hydrochloric acid is given it should be given in amounts to correspond to the 100 gm. or other amount of meat ingested.

63. **Blotting-Paper Test for Analysis of Gastric Juice.**—Mattisson reports application of Holmgren's capillary test for the acidity of the gastric juice, his conclusions being that the method is unreliable.

Berliner klinische Wochenschrift

January 27, L. No. 4, pp. 145-192

65 Eclampsia and its Treatment. J. Veit.
66 Biology of Tumors in Animals. (Tiergeschwülste.) C. Lewin.
67 *Occult Blood in Gastro-Intestinal Tract. (Zur Methodik der okkulten Blutuntersuchung des Magendarmkanals.) I. Boas.
68 Resection of Tuberculous Lymph-Nodes at Bifurcation to Relieve Tracheal Stenosis. P. M. R. Betke.
69 Transduodenal Drainage of Hepatic Duct. Hörz.
70 Spontaneous Gangrene of Forefinger and Symmetrical Gangrene. H. Harttung.
71 *Electric Treatment of Obesity. F. Nagelschmidt.
72 Chemical Action of Thorium X on Uric Acid and Other Organic Substances. J. Plesch.
73 Radiotherapy of Skin Diseases. (Ueber Radium und Mesothoriumbehandlung bei Hautkrankheiten.) E. Saalfeld.
74 *Alcohol Injections in Neuralgia. (Zur Behandlung schwerer Gesichtsneuralgien. Alkoholinjektion ins Ganglion Gasseri.) W. Alexander and E. Unger.

67. **Occult Blood in the Stools.**—Boas emphasizes that the only way to guard against errors from the presence of extraneous blood in the stools is to have the patient refrain from meat and fish for three or four days at least before the test is applied. He has been studying the various chemical tests in vogue to determine which is the simplest and most reliable. In the Weber guaiac test, instead of ether he uses an alcoholic solution of glacial acetic acid (acid. acetic. glaciale 25; alcohol. absol. 75). The color reaction is much prompter and more pronounced with this. But he thinks the phenolphthalin test is still better. (It was described in THE JOURNAL, Feb. 18, 1911, p. 546). In examining the stomach content he neutralizes it first with a few drops of a solution of soda or sodium hydroxid. The occult hemorrhage must be traced from day to day, systematically, to have the findings correctly interpreted. This shows whether the hemorrhage persists or subsides under treatment of the gastric ulcer. The occult blood findings thus permit control of treatment. They have demonstrated that the length of time required for an ulcer to heal varies widely in different persons. This suggests that the present routine method of treatment does not fit the cases of all alike. Not only the fact of the occult hemorrhage but the approximate amount of blood lost is also instructive, as noted in the intensity of the reactions.

71. **Electric Treatment of Obesity.**—Nagelschmidt has been using for eighteen months an electric apparatus which sets isolated parts of the muscular apparatus in rhythmic, regulated action, similar to Bergonié's work in this line since 1909. The muscles are thus exercised without fatiguing the patient. The method is proving useful in treatment of obesity, of contracture, of severe constipation and in atrophy of the muscles, in heart disease and asthma and after operations. The pulse and respiration are not affected, while even a fraction of the same muscular action under other conditions would influence them most decidedly and cause great fatigue, he says. The electric apparatus generates the special current which has been found of relief in headache, etc., and is responsible for the sensational account in the lay press that "sleep can now be turned on and off at will." Nagelschmidt's previous communication on the subject was summarized in THE JOURNAL, Nov. 2, 1912, p. 1661.

74. **Treatment of Facial Neuralgia.**—Alexander and Unger describe the technic followed in treating intolerable facial neuralgia by injecting alcohol into the gasserian ganglion. They injected the alcohol at numerous points in the ganglion with a very fine needle. By making the injections behind the first branch of the nerve, this is spared while the ganglion beyond is completely obliterated. The result was a complete cure to date (about five months) in the case related. The patient was a man of 55 with trigeminal neuralgia for eleven years when it was cured for a period of nearly four years by injection of 1 c.c. alcohol into the infra-orbital foramen. The neuralgia was then cured again by repeating the injection and again on another occasion, but it constantly recurred after a few months. The gasserian ganglion was then blocked and the cure seems permanent. The technic is described in detail with illustrations.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 25, XLIII, No. 4, pp. 97-128

75 *Cure of Tetanus by Magnesium Sulphate. (Weitere Beobachtungen über die Heilung des Tetanus mit Magnesiumsulfat.) T. Kocher. (Magnesiumbehandlung des Tetanus.) G. Arnd.

February 1, No. 5, pp. 129-160

76 *Criminal Abortion. (Der Kampf gegen die kriminelle Fruchtabtreibung.) H. Meyer-Rüegg.

77 Medicolegal Test for Poisonous Alkaloids. (Ueber den Nachweis von Alkaloiden in der gerichtlichen Medizin.) P. Cattani.

February 8, No. 6, pp. 161-192 and Supplement

78 Gall-Stones at Basel. (Eine Basler Gallensteinstatistik.) L. G. Courvoisier.

February 15, No. 7, pp. 193-224

79 Orthopedic Gymnastic Exercises. C. Staeubli. Commenced in No. 6.

75. **Magnesium Sulphate in Tetanus.**—Kocher has applied Meltzer's method of intraspinal injection of magnesium sulphate in seven cases of tetanus, with recovery of all but one young child whose hand had been run over by a loaded wagon and who had developed an extremely serious form of tetanus the eighth day. The head, back and chest muscles were intensely contracted from the first, rendering the intraspinal injections and intubation difficult, but even in this case great relief was evident. The child succumbed finally to paralysis of the heart, and it is possible that this might have been warded off if Meltzer's dosage had been followed. Kocher never dared to inject a solution stronger than 15 per cent., but he gave up to 10 c.c. Meltzer gives only 5 or 6 c.c. of the 25 per cent. solution. Kocher remarks that the assumption of a local action by the magnesium sulphate is sustained by the fact that the position of the patient has such a decided influence on the degree and rapidity of the distribution of the action upward. By removing the pillow the effect of the drug was remarkably enhanced, even when this was not done until several hours after the injection. He noticed further rigidity of the muscles of the chest on one side coming on as the effect of the drug was passing off. Additional proof is found in the rapid action of subsequent washing out of the spinal canal and also in the fact that the drug still lingered in the spinal fluid. But the most convincing proof of the penetration of the drug into the nerve substance was the presence of magnesium sulphate in a segment of the spinal cord from the neck and in another from the lumbar region, 3.44 per cent. of magnesium sulphate being found in the latter and 1.22 per cent. in the former. This demonstrates not only the penetration of the drug into the spinal cord but also the uneven distribution at different heights, the proportion diminishing upward. By raising or lowering the head it is in our power to restrict the action of the drug to the lower part of the spinal cord or to extend it to the medulla oblongata and the brain. When the muscles of the head and chest are affected, he advocates sending the drug to act on the brain from the start.

He says that mishaps need not be feared as we have reliable measures to combat the danger from the inhibiting action of the drug on the respiration center. When the complete relaxation of the voluntary muscles accompanying the anesthesia has prevailed for a certain time, the power of the spasm-producing toxin is broken, and the irritation of the ganglion cells reduced to such an extent that the dangerous spasmodic contractions cease and merely the continuous rigidity persists; this is practically harmless. In one of his cases the profound sleep lasted for nearly twenty-four hours and tided the patient past the danger point. The spasm of the respiration muscles and center can be effectually combated by insufflation of air or oxygen. In one of his cases spontaneous respiration was restored in an hour and in others the intense inhibiting action passed off without permanent injury, confirming Meltzer's experiences. Kocher adds that it might be possible to ward off impending arrest of respiration by a prophylactic injection of physostigmin or a prophylactic tracheotomy. The magnesium sulphate acts only while it is in direct contact with the substance of the spinal cord and nerve tissue. This is a disadvantage as the injection must be repeated when the drug disappears from the nerve tissue, as manifested by the subsidence of its effect. On the other hand, it is a great advantage to be sure that no permanent injury is left. The estimation of the effect and whether more injections are needed, is based on the recurrence or absence of further paroxysms. These constitute the main danger, while continuous stiffness, without interference with the respiration, is not dangerous. It may persist for days or weeks before gradually subsiding. Another point to which Kocher calls attention is the higher pressure in the spinal fluid after the injection. He regards this as a phenomenon of osmosis and as directly beneficial, the fluid pouring into the subarachnoid space having a detoxicating action. In one case he found that spasmodic contraction of the urethra prevented the introduction of the catheter; during the relaxation that followed the injection of magnesium sulphate the obstacle to the introduction of the catheter disappeared.

Arnd discusses the history of this method of treating tetanus to date, emphasizing that it should be only an adjuvant to serotherapy. The dosage is the great problem at present and some better mode of administration may yet be found. The inefficiency of the isotonic solution has not yet been established, nor whether the drug attaches itself to the meninges or the cord itself. The circumstance that it can be rinsed away shows that the affinity is slight. This much is certain, however, he adds, that this method of treating tetanus should be a routine measure in hospitals in all except the mildest cases.

76. **Criminal Abortion.**—Ruegg concludes his appeal for a fight all along the line against criminal abortion by saying that it is a source of depopulation far surpassing in importance all epidemic diseases. The state has every reason to fight it for the preservation of the nation. He adds that the public conscience should be trained to deprecate the induction of abortion. Medical men in general can help in this line by cultivating a deeper respect for germinating life.

Deutsche medizinische Wochenschrift, Berlin

February 20, XXXIX, No. 8, pp. 345-392

80 The Pharmacologic Basis for Bromin Treatment in Genuine Epilepsy. H. v. Wyss.
81 Roentgen-Ray Treatment of Tuberculous Focus. (Entgiftung des tuberkulösen Herdes durch Röntgenbestrahlung.) H. Iselin. First part in No. 7; abstracted in preceding issue.
82 Disease of Blood-Producing Organs. (Einige seltenere Fälle von Erkrankungen der blutbereitenden Organe.) A. Plehn.
83 *Acute Syphilitic Nephritis Soon After Infection. (Nephritis syphilitica acuta praecox.) E. Hoffmann.
84 Diphtheria Antitoxin Refound in Serum, and Proper Dosage. (Nachweis von Diphtherieantitoxin im Blutserum der damit behandelten Kranken, und Dosierung des Heilserums.) C. Schöne.
85 Dubious Findings with Blotting-Paper Capillary Test for Free Acid in Stomach Content. (Kapillaranalytische Bestimmung der freien Salzsäure im Magensaft.) H. Schmidt.
86 Copper Sulphate Test for Urobilin. T. Hausmann.
87 Resection of Wall of Thorax Under Insufflation Anesthesia. (Thoraxwandresektion mit Meltzerscher Insufflation.) O. Nordmann.
88 Injury of Eyes by Light. (Veränderungen und Schädigungen des Auges durch Licht.) F. Schanz.
89 Technic for Overcoming Defect in Singing Voice. (Deckung des Gesangstones.) R. Schilling.
90 Technic for Tonsillectomy. (Die Tonsillenexstirpation, ihre Gefahren und deren Bekämpfung.) M. Halle.
91 Adenoma of the Umbilicus. (Zur Kasuistik und Histogenese der Nabeladenome.) A. Zitronblatt.
92 Blood-Pressure in Diphtheria. (Zur Frage der praktischen Bedeutung der Blutdruckmessung bei der Diphtherie.) J. M. Brückner.
93 *The "Human Aquarium." W. Sternberg.

83. **Early Syphilitic Nephritis.**—Hoffmann reports two cases of acute syphilitic nephritis and remarks that he has encountered only six cases of any severity in his many years of practice. It is distinguished by the enormous proportion of albumin in the urine (3, 8, 13 per cent.). It generally develops during the period of eruption, possibly even before the roseola. It may appear with sudden edema and dropsy or develop insidiously. Spirochetes in the urine sediment clear up the diagnosis. The ordinary treatment for kidney trouble is not enough; specific measures are required.

93. **The "Human Aquarium."**—Sternberg describes his examination of a circus freak who is able to drink up to seven quarts of water at a time and expel it through his mouth at will without any evidence of nausea. He also swallows live frogs and fishes and expels them in the same way. His father and grandfather had this same faculty of being able to ingest and expel large quantities of fluid at will. Sternberg noticed that the young man swallowed the ten frogs first and also expelled them first. Roentgenoscopy showed the stomach apparently normal in every respect.

Medizinische Klinik, Berlin

February 16, IX, No. 7, pp. 241-280

94 Dementia Praecox. (Ueber Schizophrenie.) E. Stransky. Concluded in No. 8.
95 Alcohol in Fatigue. (Zur Kenntnis der essentiellen Ermüdung und ihrer Therapie durch Alkohol.) C. Widmer.
96 Pseudo-Appendicitis. (Appendicopathia oxyurica.) L. Aschoff.
97 Poisoning from Pudding. (Vanillespeisevergiftung.) A. Eisenheimer.
98 *Cholesterin in Treatment of Paroxysmal Hemoglobinuria. J. Pringsheim.
99 Gynecology and Psychiatry. J. Peretti.
100 A Dose of 1.8 gm. Phenolphthalein Did Not Hurt Child. F. Orland.
101 Fever-Producing Property of Casein. (Die pyretogenische Wirkung des Caseins aus Kuhmilch.) L. E. Holt and P. A. Levene (New York).

98. **Cholesterin in Paroxysmal Hemoglobinuria.**—Pringsheim's patient had been given previously a thorough tentative course of mercurial treatment but without effect on the hemoglobinuria. As cholesterin seems to have an inhibiting action on hemolysis in the test-tube, Pringsheim applied it to arrest the paroxysmal hemoglobinuria and found that it did actually abort the attacks and ward them off as long as the system was under the influence of the cholesterin. On its suspension the attacks recurred as before. He gave the cholesterin in five intramuscular injections of 5 c.c. each time of a 10 per cent. emulsion of cholesterin, in the course of eleven days. Exposure to the same cold and other external influences which before had brought on a severe attack of hemoglobinuria for eight or ten hours, induced only a slight elimination of hemoglobin, lasting only two and a half hours. Another time the characteristic chill and fever followed the exposure but there was no hemoglobinuria. A week after suspension of the cholesterin the same exposure brought on a severe and typical attack. No appreciable changes could be detected in the blood during the cholesterin treatment. The patient had no complement in the blood, but the complement from healthy blood showed no influence from cholesterin.

Monatsschrift für Kinderheilkunde, Berlin

XI, No. 9, pp. 421-454

102 Eosinophilia in the Exudative Diathesis. A. Benfey.
103 *Acute Poliomyelitis in Norway. A. Johannessen.
104 Hyperpyrexia in the Rectum in Children. (Ueber rektale Hyperthermie im Kindesalter.) E. Moro.
105 Use of Opiates in Childhood. (Ueber die Verwendung von Opiaten im Kindesalter.) E. Döbeli.

103. **Poliomyelitis in Norway.**—Johannessen reviews the history of poliomyelitis in Norway since the first known epidemic in 1868, and summarizes the present knowledge of it as expressed in the public health measures for its control: 1. Isolation of patients in the acute stage for three weeks. 2. Especial care with regard to the nasal secretions as well as other secretions and excretions of the patient. 3. Disinfection of all articles that come in contact with such secretions and excretions. 4. Especial attention to the transmission of the infection by healthy persons and abortive cases, particularly patients with angina. 5. Every new case is to be reported and the report must contain all possible information in regard to the etiology and development of the disease. 6. Schools in severely infected localities must be closed and children from infected houses must be forbidden to go to school for a certain length of time. Money has been appropriated by the Norwegian parliament for a systematic study of the disease and experiments on monkeys to determine its etiology.

Münchener medizinische Wochenschrift

February 18, LX, No. 7, pp. 337-392

106 The Mobilization of Glycogen. E. J. Lesser.
107 *Tubercle Bacilli in the Blood. (Auftreten virulenter Tuberkelbazillen im Blut nach der diagnostischen Tuberkulin-injektion.) Bacmeister. (Zum Nachweis der "Tuberkelbazillen" im strömenden Blut.) E. Kahn. (Tuberkelbazillennachweis im Blut.) Kessler.
108 Simplified Moving Pictures of the Stomach. (Vereinfachte Magen-Bioröntgenographie.) K. Kaestle.
109 High Frequency Current for Operating on the Bladder. (Ueber Operationen im Blaseninnern mit Hilfe von Hochfrequenzströmen.) G. Bucky and E. R. W. Frank.
110 Mixed Anesthesia. (Aethertropfnarkosen nach vorheriger Injektion von Pantopon-Atropinschwefelsäure.) E. Kisch.
111 Determination of Uric Acid and Purin Bodies in the Urine. L. Flatow.
112 Two Cases of Severe Intoxication from Neosalvarsan. (Neosalvarsanvergiftung.) P. Wahle.
113 Toe Substituted for Finger. (Ersatz von Finger- und Zehenphalangen.) W. Goebel.
114 Action of Gold Salts Injected Intravenously. (Wirkung von intravenösen Infusionen mit Aurum-Kalium cyanatum.) W. Heubner.

115 Substitutes for Coffee. (Die wirksamen und werthvollen Bestandtheile des Kaffeegetränks mit bes. Berücksichtigung des koffeinfreien Kaffees Hag und des Thumkaffees.) K. B. Lehmann. Commenced in No. 6.

107. **Tubercle Bacilli in the Blood After Injection of Tuberculin.**—Bacmeister states that no tubercle bacilli were found in the blood in his first research and he discovered that the structures which seemed to be typical acid-fast bacilli were not bacilli at all in numbers of cases. The pseudobacilli can be found in nearly every specimen. At the same time, positive animal experimentation has demonstrated that true tubercle bacilli inhabit the blood much more frequently than had been suspected until Liebermeister's recent research. Bacmeister obtained constantly negative results on inoculation of animals with the blood from fifteen patients but after a diagnostic injection of tuberculin he tested the blood again, drawn from twelve to twenty-four hours afterward, at the height of the reaction. Four of the animals inoculated at this time developed tuberculosis. The four patients from whom the material had been derived presented a pronounced local reaction in the focus to the tuberculin injection. The temperature did not run up very high but the focal reaction was marked. This fact that we are unable to foresee or control the extent of the focal reaction should warn against the indiscriminate application of the subcutaneous tuberculin test. No serious results were observed; the temperature soon subsided. The tubercle bacilli thus driven out of the focus into the circulation may have been destroyed or they may have settled down somewhere and are leading a latent existence.

Kahn reports research in this line which has confirmed the absolute unreliability of the microscopic findings in the blood. Inoculation of animals is the only instructive test.

Kessler says that the test for tubercle bacilli can be applied to coagulated blood as he describes in detail. He draws 0.5 or 1 c.c. blood into a capillary tube and seals it at both ends. When ready to apply the test, the ends are cut off, the thread of blood drawn out and placed in a tube with a knife-tip of trypsin and 1 c.c water. It is shaken up for a few times and by the end of the hour the blood is dissolved. Then the ordinary technic is applied and after centrifugation the specimen is ready for use.

Petersburger medizinische Zeitschrift

February 14, XXXVIII, No. 3, pp. 29-42

116 Hypertrophy of the Heart. (Ueber Herzhypertrophie.) A. Bertels.
117 Report of the Russian Uterine Cancer Commission. G. v. Knorre.

Zentralblatt für Chirurgie, Leipsic

February 22, XL, No. 8, pp. 265-296

118 Flap from Stomach Wall for Plastic Operation on the Esophagus. (Oesophagusplastik aus der Magenwand.) J. Galpern (Twer, Russia).
119 Modified Technic for Jianu-Roepke Gastrostomy and Plastic Esophagus Operation. (Vorschlag bezüglich der Gastrostomie und Oesophagoplastik nach Jianu-Roepke.) Willy Meyer (New York).
120 Improved Technic for Suturing Abdominal Wall. (Die Rekonstruktion der Bauchdecken.) F. Schultze.
121 Subserosa Appendicectomy. F. Derganc.

Zentralblatt für Gynäkologie, Leipsic

February 22, XXXVII, No. 8, pp. 265-296

122 Application of Active Principles of Ergot in Obstetrics. (Versuche zur Verwendung des Beta-Imidazolyläthylamins in der Geburtshilfe.) F. Jaeger.
123 Necessity for Dorsal Decubitus after Birth of Head. (Seitenlage intra partum und "endogene" Infektion.) F. Westphalen.
124 Obstetric Laceration of Roof of Vagina. (Kolparrhexis sub partu.) E. A. Bjorkenheim.

Gazzetta degli Ospedali e delle Cliniche, Milan

February 13, XXXIV, No. 19, pp. 193-200

125 Fracture of Fibula or Femur with Large Defect. (Due rari casi di traumatologia.) F. Bindi.

February 16, No. 20, pp. 201-216

126 Adrenal Organotherapy. (Apparato surrenale e forme convulsive con speciale riguardo all'epilessia.) T. Silvestri.

Semana Medica, Buenos Aires

January 23, XX, No. 4, pp. 189-252

127 Tumors of the Nose and their Treatment. (Estudio de algunos tumores nasales.) J. de la Cruz Correa.
128 Questions of General Biology. V. Delfino.
129 Reducing Power of the Liver. (El poder reductor del higado.) O. Fernandez.
130 *Indications for Prostatectomy. (Nuevas orientaciones para la prostatectomia.) N. Serrallach.
131 *Grave Danger from Sudden Change of Position in Febrile Diseases. (Peligro en las enfermedades febriles del paso brusco de la posicion horizontal a la vertical.) S. Leduc.

130. **Prostatectomy.**—Serrallach insists that for prostatectomy to be a complete cure of all disturbances, the prostate must be freed from irritating influences from the adjacent sexual organs. He therefore urges the necessity for ligation of the vasa deferentia and severing of all connection between the prostate region and the genital organs, obliterating the functions of the latter. They are usually already compromised beyond repair, and their complete functional destruction is the only means to ward off recurrence of trouble.

131. **Dangers of Abrupt Change of Position During Fever.**—Leduc warns that when a reclining person sits up suddenly, the heart bumps against the column of blood below it. In health the heart yields, the column of blood sinks down, the blood flows out of the vessels in the brain and there may be dizziness from the anemia in the brain. If the myocardium is weak, it may not be able to stand the sudden strain on it from this change of position. He has had five patients with pneumonia die just as they were raised to a sitting position. Other physicians have observed the same. Replacing the patient in the horizontal position at once may relieve, but the heart has been given a strain from which it may never recuperate. When a febrile patient sits up in bed, the pulse almost always runs up and grows weaker—the changes more pronounced the graver his condition. He should always be raised very gradually to the sitting position. By absolutely forbidding the patient to sit up during an acute febrile disease, Leduc adds, the physician renders him a greater and more certain service than he can possibly render by prescribing all kinds of heart tonics.

Hospitalstidende, Copenhagen

February 12, LVI, No. 7, pp. 153-184

132 *Benzol in Treatment of Leukemia. K. Jespersen.

February 19, No. 8, pp. 185-208

133 Experiences with Treatment of Concomitant Convergent Strabismus. E. Lindgren.

132. **Benzol in Leukemia.**—Jespersen reports a case of very severe myeloid leukemia in a man of 32, rebellious to all measures, including 100 exposures to the Roentgen rays. The man was extremely emaciated and entirely helpless, with fever and hemorrhages, when the benzol treatment was begun. The tenth day the number of leukocytes had dropped from 250,000 to 61,000 and the general condition showed marked improvement. The leukocytes dropped finally to 5,000 while the reds had increased from 2,000,000 to 3,500,000 and conditions gradually righted themselves until the man considered himself cured and returned to business. It is possible that the preceding radiotherapy may have prepared the way for the benzol. The prompt and remarkable improvement under it did not last long. Then the disease flared up again, the leukocytes ran up to 750,000 and the pernicious type of red corpuscles made their appearance. The patient died the twenty-third day after recurrence of symptoms. The dosage of benzol had never been over 5 gm. a day.

Ugeskrift for Læger, Copenhagen

February 13, LXXV, No. 7, pp. 291-324

134 The Four Diagnostic Reactions. (Nonne's fire Reaktioner.) A. Bisgaard.
135 Case of Rupture of the Liver. (Ruptura hepatis.) T. Eiken.

February 20, No. 8, pp. 325-362

136 Case of Generalized Gonococcus Infection with Keratosis. O. Haslund.